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#### WILL IRONCLADS BECOME RUBBERCLADS?

IT is stated by reputable English publications that the British Admiralty is engaged in a series of tests on a new kind of plate for English Dreadnaughts, to consist of rubber—at least in part—the present tests being made on plates of alternating layers of steel and rubber.

Such comments as have been made by the writers in non-technical American journals have been largely of a facetious nature, the writers allowing their imagination considerable play in picturing the great naval engagements of the future when the ironclads have given way to rubberclads. According to these writers, the skilled marksman of that day will not be satisfied to puncture the enemy's ship, but will so direct his projectile that it will carom along down the line, striking one Dreadnaught after another, in an endless chain of destruction, and he will exercise particular care that his shots do not strike broadside on and rebound against himself. A great sea fight will then become a sublimated game of billiards.

But there is enough in this idea of rubber protection

for engines of war to have engaged military and naval minds long before the present time. When Louis Napoleon, at that time Emperor of France, visited the memorable Goodyear exhibit at the great Paris Exhibition in 1854, he was particularly struck by a pile of large rubber balls standing in one corner, and he remarked later that while he had often thought rubber might be used in warfare for defensive purposes, it had never occurred to him that it was suited for the manufacture of cannon balls. It was explained, diplomatically, to the imperial mind, that these were not cannon balls, but ordinary footballs. There is nothing to indicate, however, that the Emperor took any active steps towards putting his idea of rubber defense into practice, nor has very much of a practical nature been done in this direction since Napoleon's day; but there is no reason why such tests as it is said the British Admiralty is now engaged in should not be made.

It is certainly quite possible that some combination of rubber and steel—in fact, it is quite thinkable that rubber alone, if subjected to some toughening process yet to be discovered—might be a very effective protection for the great sea-fighters. At least it entails no great expense to prepare a series of targets made of varying arrangements of steel and rubber layers and to see how they act under the impact of modern projectiles. And ammunition might be put to very much worse uses. And if it should be found that rubber could be substituted, in part or *in toto*, for the thick steel plates that now cover the sides of the great men-of-war, what a note of joy would arise from the eastern planters, for no longer, then, would there be any cause for worry as to what is to be done with that 300,000 tons of plantation rubber looming up in the near future.

#### THE CASH VALUE OF ONE GOOD SNOW STORM.

WHEN that spirit of pessimism which will occasionally afflict even the best of business men comes upon the dealer in rubber footwear, he is wont to complain that we no longer have any good, old-fashioned snow storms such as there were in his boyhood days. It is natural for a man with a large stock of rubber boots and shoes on hand to get into this frame of mind when winter advances well toward spring with one day of sunshine succeeding another; but, as a matter of fact, the statistics of the weather bureau show that, taking one year after another, there is now just as much precipitation, and as much of it in the

form of snow, as was the case a generation ago. If snow storms come late they are very apt to come deep; as an illustration of which may be cited the great storm that swept the country during the second week of February, after several months of mild, autumnal, snowless weather.

The financial writers for the daily press, as is quite natural to people of their calling, immediately began to estimate, after this storm, just how much it signified to the rubber manufacturer—and some of them computed that it meant a net profit to the United States Rubber Co. of \$1,000,000, or equivalent to 3 per cent. on its common stock. Perhaps at first blush this might seem like an extravagant assertion, but let us see:

The bulletin issued by the Weather Bureau for that week showed that this snow storm covered practically the whole northern half of the United States, from the Atlantic to beyond the Rockies, with the exception of a little diagonal strip through Kansas, Nebraska and Wyoming, and the fall was anywhere from a film of snow to a solid 40 inches.

As the part of the country affected is the more populous part, it is safe to say that over half the population, or probably 50,000,000 people, were put in a situation where rubber footwear was eminently desirable; and it is a safe venture to estimate that at least 20 per cent. of that 50,000,000 people bought a new pair of rubbers, in one form or another. That would make 10,000,000 pairs. And as the snow in most places was of unusual depth, so that ordinary light sandals and even storm rubbers would hardly serve—at least in the rural districts—it may be stated without fear of exciting any active controversy, that an exceptionally large number of arctics, gaiters and boots passed over the counter. So that the average amount of money spent for these rubbers would doubtless be at least \$1.50, making a snug total of \$15,000,000. It probably would be well within the bounds of reason to assume that the manufacturers make 10 per cent., on an average, on their sales; which would give the manufacturers a profit on that one storm of \$1,500,000. Just what proportion of this sum went into the till of any particular company it would be difficult to ascertain to a nicety, but it is undoubtedly safe to say that over 50 per cent. of it went into the coffers of the big corporation. So that the financial writers who estimated that that storm meant a net profit of a million dollars to the United States company, were probably not very far wide of the mark.

#### A GREAT LOSS TO BRAZIL.

**B**RAZIL, and especially the Amazon country, have sustained a serious loss in the death—which occurred February 18—of Dr. Jacques Huber. His attainments as a rubber botanist, his great activity as director of the Para Botanical Gardens, and his untiring efforts to advance the rubber interests of the Amazon—which have been dwelt on more fully in a later page of this issue—made him not only a recognized authority in all questions pertaining to the development of the vast rubber possibilities of the Amazon country, but a constant inspiration to all those who, like himself, ardently longed to see Brazil so shape, organize and utilize her resources that she could hold her own against the fiercest rivalry the East could create.

Tho the greater part of his time was passed in Brazil, and his chief labors performed there, and tho his death will fall most grievously upon his own country, still he was such an international figure that his untimely taking off is a loss to the whole rubber world.

#### A WISE MAN'S VIEW OF THE LABOR UNION.

**A**N official of one of the local labor unions in New England recently wrote a letter to President-Emeritus Eliot, of Harvard, asking why he was opposed to labor unions and adding that he, himself, believed that these unions had added greatly to the happiness of the working man by bringing about shorter hours, higher wages and improved conditions.

President Eliot replied that the unions had indeed accomplished these three particular results—the shortening of hours, the raising of wages and the improving of many conditions. He said his criticism was not directed against trade unionism, but against its methods, and he gave four very substantial reasons for his opposition to these methods, viz.: The habitual use on the part of trade unions of violence against persons and property, to gain their ends; second, the limiting of productiveness; third, the demand for a uniform wage without regard to ability or skill, and fourth, disregard of contracts—both those made by themselves and those made by their employers in their various business relations. The first and last of these methods, he stated, “are grave violations of the universal moral sense,” and the other two “rob the working man of strong motives for self-improvement and make it probable that he will not do any hearty, zealous, faithful work.”

The Doctor went further and said that the raising of wages and shortening of hours do not necessarily increase the working man's happiness; that happiness must come from interest in one's work—as the “whole progress of civilization depends upon universal, steady, productive labor”—rather than from success in avoiding it.

These are all very sound contentions of the wise New England scholar and should be taken to heart by every working man. There certainly is no happiness for the man who looks upon his daily occupation, whatever it may be, simply as a punishment from which he is to escape as early and often as possible. A man who goes through his daily task with one eye on his work and the other on the clock is sure soon to get a distorted vision—his work eye will grow weaker and his clock eye will get stronger. As President Eliot says, the two great objections against labor unionism as now conducted are its lack of moral sense and its system of rewarding the shirker rather than the worker.

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#### CO-OPERATIVE ADVERTISING.

ONE of the large tire companies of Akron has given considerable publicity of late to the fact that it has established a service bureau in its advertising department for the purpose of supplying dealers selling the company's products with advertising copy and appropriate cuts. The dealer pays for his space but the matter to be used therein is supplied him gratis by the manufacturer.

This is altogether an efficient and sensible form of co-operation. There are undoubtedly a great many retailers who would like to advertise the goods they have to sell. They are perfectly willing to meet the expense—which often in the local papers of small communities is not very high—but the great bugbear with them is the copy. The preparation of an appropriate business announcement seems to them quite as formidable as the composition of a sonnet or a symphony. This service bureau maintained by the manufacturer saves the dealer all this disturbance of nerves and distress of mind, and also undoubtedly saves him not a little money, for space is of little value unless properly filled, and poor advertising often does more harm than good.

To be sure this is not a new idea. It has been tried, in some cases intermittently and in other cases continuously, by other rubber companies. The only sin-

gular feature is that it is not done by a greater number of manufacturers.

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#### THE PERENNIAL MAKING OF AUTO. LAWS.

WHEN a member of one of our state law-making bodies cannot think of any other way by which he can render full service to his constituents for salary drawn he introduces another automobile bill. The legislators of nine states convened about the middle of January. Inside of the first four weeks 114 different measures regulating the use of the automobile had been introduced in these nine states, Massachusetts leading with 44.

As a sample of this class of legislation it might be interesting to cite one of these Massachusetts bills, which, if passed, would compel the use of a splash-guard on every motor vehicle. The fact that no splash-guard has yet been invented which really guards from splashing was of course an unimportant detail in the mind of the legislator. Splash-guards have been a subject of considerable experiment, particularly in Europe, and especially in Paris—some made of rubber, some made of metal, and some made of both—but none has as yet been devised that efficiently lives up to its name. But, as already said, that fact in no way disturbs the law-maker, who insists on making splash-guards compulsory.

Several western municipalities recently passed ordinances compelling all motor wagons to be equipped with fenders, regardless of the fact that no fender that would really fend has yet been discovered. But probably the effect of this sort of legislation is to spur inventors on to greater efforts in devising efficient fenders and workable splash-guards, both of which are to be desired—especially the fender, for even in these advanced days the preservation of human life is still generally looked upon as of rather more importance than the conservation of human clothes.

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Cotton is being more and more largely used in conjunction with rubber manufacture. Hence the readers of this journal will be interested in the article which appears in another column of this issue, dealing with the questions of where cotton is grown, where it is marketed, and for what particular goods the various grades are suited. This article, together with the group of statistical tables which follow it, will doubtless be of interest to rubber manufacturers generally.



## LECTURE ON RUBBER BY DR. E. MARCKWALD.

UPON the invitation of the Merchants' Guild of Berlin, Dr. E. Marckwald, the well known expert, delivered a lecture on rubber which has been reprinted. Owing to the fact of the lecturer being co-proprietor of the Henriques Laboratory and of the Rubber Central Bureau for the German Colonies, he had special facilities for handling the comprehensive subject of "Rubber, Its Extraction, Industrial Importance and Manufacture," which formed the title of his address.

Speaking, as he did, before a non-professional audience, it was natural that he should touch on many points with which rubber men are already familiar. Thus his references to the history and technology of rubber dealt with many known facts, such as Goodyear's discovery of the principle of vulcanization, and the subsequent investigations of Parkes as to the cold process. In the opinion of the lecturer there was no further event of importance in the technical history of rubber, until the production some years ago of the synthetic article.

In dealing with the various sources of rubber, he remarked that it is found in the gigantic trees of the primeval tropical forests of South America, Africa and Asia, while in the two last named continents it likewise exists in vines. It is, moreover, furnished by the ligneous shrubs of Mexico, and by the mistle-toe trees of Venezuela. He added that it was perhaps reserved for the near future to witness the extraction of the milk from a number of trees and shrubs on the steppes of German East Africa and Natal. In all, there are today distinguished more than a hundred species of plants yielding rubber, and countless varieties of the same.

The proportion of rubber in the latex varies considerably; the best *Hevea* containing about 42 per cent. and *Castilloa* 30 per cent. Dr. Marckwald's own investigations showed that the *Kickxia* latex of German East Africa yielded about 30 per cent. and that of the *Manihot* as low as 20 per cent. The coagulates of the various *Euphorbium* latices of German East Africa were found to contain 5 to 8 per cent. of rubber.

Rubber gathering in South America was fully described, the opinion being expressed that there is a large quantity of rubber in the relatively unexplored territory of the river Acre. Mexico has only acquired importance as a rubber country since 1902, when the first samples of guayule rubber were sent to Germany. It was at first supposed to be impossible to vulcanize this article, but experiments having demonstrated that process to be feasible, guayule rubber was soon taken up by the industry, being used in compounds by practically every factory. Exports of the article from Mexico rose to 5,000 tons in 1907 and to 10,000 tons in 1910. In 1912 they had receded to 7,000 tons. The revolutionary troubles have materially impeded the transport of the shrub to the factories.

The history of the Eastern Asiatic plantations was then dealt with, from the time of their establishment in 1876 with the Brazilian seeds obtained by Mr. Wickham. The areas at present under rubber are estimated as being: Ceylon, 138,000 acres; Malaya, 700,000 acres. With the anticipated increase of yield as the trees reach maturity, the lecturer estimated the production of plantation rubber as: 1916, 110,000 tons; 1920, 200,000 tons.

In considering this question he referred to the enormous dividends paid by the English companies, which amounted in the years 1909, 1910 and 1911 in various cases to totals of 937½, 700, 596¼ and 510 per cent. He urged the investment of German capital in such a profitable venture as the cultivation of rubber.

## GERMAN COLONIES.

Perhaps the most interesting feature of Dr. Marckwald's lecture was his detailed reference to the German colonies, all of which with the exception of South West Africa, are interested in rubber, either at present or prospectively. The colonies which are thus interested are: East Africa, Kamerun, Togo, New

Guinea, Samoa and the islands of the South Sea. The total area under rubber in the German colonies is about 112,500 acres, with about 40 million trees. Of these totals 82,500 acres and 27 million trees belong to East Africa, which thus has over five-eighths of the entire rubber acreage. As the total cultivated area of German East Africa is about 200,000 acres, the proportion of 82,500 acres under rubber indicates its value as a factor in the development of the colony.

The lecturer expressed his opinion that the future of German East African rubber cultivation was threatened by a number of defects in extraction and preparation, caused by want of knowledge rather than by any fault of the planters themselves. He urged the need of German East Africa bringing on the world's markets cheaper and better products of uniform quality; also referring to the lack of support he had encountered when endeavoring to bring out the truth about conditions there.

## MANIHOT RUBBER.

*Manihot* rubber, he remarked, will always be the chief rubber product of German East Africa, and if rightly prepared is of excellent quality. It has not been sufficiently appreciated by manufacturers and when tested for friction and elongation it has been found, in the speaker's opinion, equal to the best Brazilian Para.

## CONSOLIDATION OF PLANTERS' INTERESTS.

Dr. Marckwald had experienced much opposition in his efforts to establish a community of interests between planters and planters' associations. He consequently advised the restriction of new capital investments until German East Africa had placed on the market a uniform and rightly prepared first-class standard quality.

## OTHER GERMAN COLONIES.

According to the lecturer's statement, conditions in the other German colonies are more favorable than in German East Africa. In Togo plantation culture is fairly well developed by reason of the favorable labor conditions. The situation in New Guinea is relatively satisfactory. *Ficus* and *Castilloa* are cultivated in Kamerun in small quantity; *Kickxia* and (during the last few years) *Hevea Brasiliensis* having been added. Prospects for the latter in Kamerun are good, it having been successful in other parts of West Africa. Seeing the advantageous climatic conditions, the lecturer expressed surprise that the cultivation of *Hevea* had not been taken up at an earlier date in Kamerun.

## MANUFACTURING, RECLAIMING AND SYNTHETIC RUBBER.

The various processes of manufacture were touched upon, the lecturer giving a general description of the salient features of each.

Dealing with the subject of reclaimed rubber, he explained that the principle consisted in the removal as far as possible of the filling material and the free sulphur, thereby making the rubber plastic and fit for use again. The reclaiming industry started about the same time as rubber manufacture, attaining importance only within the last 40 years in America and England, and much later in Germany. It is today of immense extent.

Synthetic rubber the lecturer characterized as a triumph of German science, the technical solution of the manufacture of which may be confidently looked for from the untiring work of German chemists.

## DISSOLUTION OF GERMAN BENZINE TRUST.

The dissolution has been announced of the German Union Benzine Works, which has hitherto been acting as the selling agency of the Steaua Romana and the Asiatic Petroleum Co., the agreement between the two last named companies having lately come to a close. From the beginning of 1914 the selling agency is in the hands of the three German works of the Asiatic Petroleum Co. at Düsseldorf, Ratisbon and Wilhelmsburg.



## The Uses of Rubber in Mining.

THE mineral industries of the Three Americas are enormous factors in the sales of india rubber manufactured goods. The past year's production of minerals from mines at home and abroad that are controlled by domestic capital is estimated at two and one-half billions of dollars. The annual production has been almost doubled since the year 1900. In rank of mineral production, Pennsylvania has been for many years in the first place. But the center of distribution of all kinds of rubber products for our mineral industries is Chicago. Hose is a large item in purchases by mines. There are in our country, Canada and Mexico, probably 100,000 mines which use rock drills. Under present conditions, at least 850,000 rock drills are at work, and the average length of hose for each drill is 100 feet. In no other industry are conditions as hard against the life of hose as in most of the deep mines.

George W. Salisbury, of Chicago, was the father of the present-day system of making hose especially for deep mines where the temperature is high. Before going into the rubber business he had operated very large textile mills in New England, and then engaged in the making of rubber goods in the same locality before going West. He found a great deal of leather hose in use in Western mines, due to the fact that most of the mine captains and engine drivers and machinists were Cornish or Welsh, and adhered to old English practices. Most of that leather hose was made in the mine shops, and was slushed with grease in the belief that the grease largely increased its life. In 1883 George W. Salisbury brought out a special hose for mine work under the extremely trying conditions which existed in Montana and Nevada deep mines, where the average temperature was 110 degs. F. In one of John W. Mackay's mines at that time the men could not work more than twenty minutes at a time before keeling over in a faint, because of the high degrees of humidity and heat. In that mine the Salisbury pattern deep mine hose, wire wound on the surface, worked so well that even the Cornishmen admitted its superiority to the leather kinds.

Several fires in big mines in Pennsylvania that have been going on for many years, and which have been walled off at enormous cost to confine them within a fixed area, could have been put out when they started if the mines had been equipped with good hose. One fire has been burning in

Montana since 1881, and has destroyed many millions of dollars' worth of copper and silver ores. One in Pennsylvania has been burning over fifty years. Fire protection in mines lagged until good rubber hose came into general use. Today, every well equipped mine has a mine fire department with special pumps and mains and hose equipment maintained in the highest condition of efficiency, and rigorously inspected by the chief engineer. The timber used for props in mines in North America required the cutting down of well grown trees from an area equal to that of New York State and Rhode Island—50,420 square miles. Every year sees timber that represents the stripping of the trees from an area equal to four times that of New York City—1,308 square miles—put down the mouths of mines for props and other purposes.

This gives an adequate idea of the value of a well equipped mine fire department in minimizing fire risks as to mine timbering.

A great deal of suction hose is used by the mining industry, and as all well-managed mines and quarries today are officered by technical engineers, the hose specifications demand the best to be had. A recent large shipment of suction hose for mine systems was made by a



ROCK DRILL IN DEEP GOLD MINE IN SOUTH AFRICA.

local pump making works to the gold mines of the richest native prince in East India. About sixteen billion gallons of water had to be pumped out of his mines, that have been flooded to the top of the collars since 1860. Almost three-fourths of the rock drills in use at the great gold and diamond mines of South Africa are made in this country, and so far as the orders of the chief engineers of those mines—mostly Americans—can be carried out, the hose and fittings of rubber for these machines are shipped from this country.

The stock of rubber hose and rubber packing carried in the stores of the gold mines near Johannesburg, South Africa, is estimated at \$175,000. Stocks thereof at the Kimberley diamond fields are estimated at \$100,000. Specifications for rubber hose and packing are rigidly drawn and only the best grades are used.

In the mining, engineering and kindred industries there is developing a country-wide movement to buy rubber hose in accordance with specifications drawn with particularity, to ensure the best possible wearing qualities. The principal reason for this demand for high grade hose is because

wherever inferior sorts of hose are used disintegrated particles of the inferior substance get into the working parts of the rock drills and pneumatic tools and thereby reduce their efficiency. In almost all instances, where buyers of rock drills and pneumatic tools have found fault with the machines, the inspectors for the makers have found the



TURNTABLE DRILL WAGON AT CHAMPLAIN BARGE CANAL.

fault to be that of the makers of the inferior rubber hose that had been fitted to the machines. With high grade hose the machines always work up to the tables of efficiency calculated by the makers.

The work of the Catskill watershed for New York City's water supply is really a mining undertaking, and nearly all the engineers and mechanics have had experience in domestic and foreign mining. On this job there are almost 1,000 rock drills made by the Ingersoll-Rand Co., and each drill averages the use of 100 feet of rubber hose. The New York Barge Canal work is quite like a mining project for the most of its length, as a great deal of working in rock is being done by miners. The amount of hose, packing and belting of india rubber in use on this undertaking is estimated at \$197,000. It was estimated two years ago that the subway and tunnel work planned for New York during a period of five years would call for the purchase of india rubber and gutta percha manufactures to the amount of \$750,000.

Four of the larger American machinery making corporations have recently been at work on contracts for the developing of coal mines in East India. The rubber goods specifications connected with these contracts came to about \$75,000, and were filled by domestic manufacturers. A number of great mining developments are going on in Peru, Chili and Brazil by New York capitalists. So far, the expenditures for machinery and supplies for one of these mines in Peru have reached \$45,000,000—including the construction

of a railway. The purchases of rubber goods of domestic make for these mines constitute a big annual sum. The mines support a town of 20,000 inhabitants. The buyers for the mines buy in rubber goods a great deal in addition to hose, belting and packing, notably in rubber boots and all kinds of goods used in families. The writer hereof in asking Phelps, Dodge & Co., large miners of copper and coal and operators of mineral and other railroads in the southwest and Mexico, how many kinds of rubber goods they buy regularly, was turned over to the buyer's department, in New York, where it was learned that the house has a department store at its principal mines where as many as 500 clerks have been employed, and the purchases in rubber include every article that can be found on sale in a local department store.

There are several thousand mining corporations in the Three Americas which maintain general stores for the convenience of employes and their families. These stores are carried on by the same men who buy the supplies for the engineering departments of the mines. The usual practice at these stores is to keep several men in charge of the rubber and textile goods, ranging from stocks of belting and hose to rubber dolls and rubber tips for crutches. Within the Wall street district there are over a hundred buying

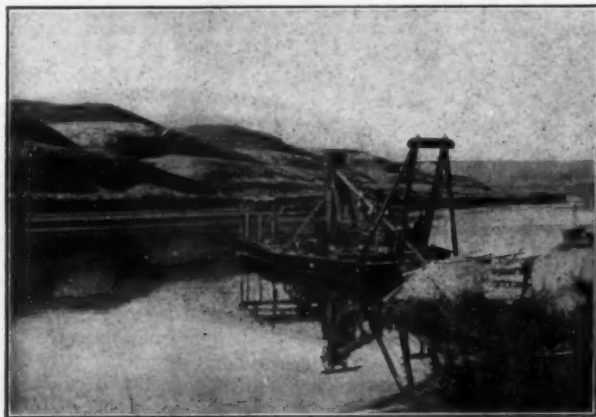


TRIPOD DRILL AT CHAMPLAIN BARGE CANAL.

agencies for all kinds of supplies for domestic and foreign mines. Orders for rubber goods come to these offices from near and distant mines every day, and the volume of business is very large.

Mining in regions remote from supplies of fuel has been greatly advanced in recent years by the use of hydro-electric power. This has brought about a great increase in the use of

gutta-percha for use in power and lighting cables in and near mines. Many domestic and South American mines that are 10,000 to 12,000 feet above sea level, and that are hundreds of miles from woodlands and coal mines could not be worked at a profit with steam power, but are paying well under electric power. There are none but electric mine hoists in thousands of dividend-paying mines opened within a decade, and all modernly equipped mines are using electric lights; so that this means a continuously enlarging market



GOLD DREDGE AT FEATHER RIVER, CALIFORNIA.

in the mining industry for insulated cables and wire. The power and lighting capacity of all the mining plants in the Three Americas being accurately known by engineering societies, it is demonstrable that the insulated wire in use is not less than the equivalent of eighteen girdles of wire around the equator.

All makers of pneumatic tools relate that the mineral industry is daily increasing purchases in this field. The greater mines, as the Anaconda, and Calumet & Hecla, make a great deal of the compressed air machinery and tools which they use, and their machinery shops carry large stocks of hose and packing of special kinds made for steam, hydraulic, compressed air and pneumatic machinery. A big gold dredging plant in Montana that was designed and set up by the late Prof. N. S. Shaler, of Harvard University, is an interesting example of the uses of the best kinds of rubber hose, packing, special patterns of molded rubber goods and of gutta-percha-covered power cables and good insulated wires for the lighting plant. The plant is run with three eight-hour shifts of crews, and is highly profitable. Only the very best of rubber products is bought. Wherever enough water can be had to float a gold dredge, they are at work, and the industry is extending, as also is gold dredging by hydraulic methods. In both departments the consumption of suction and other kinds of hose is large.

In Alaska alluvial gold deposits are being worked where the ground is frozen fifty to sixty feet below the surface. Low cost petroleum from California has enabled miners to thaw the tundra to the depths where gold is found. Another important factor in this arctic-like winter industry is the high working properties of rubber hose and packing made with special reference to these uses. Good grade rubber hose is a prime factor in the economical working of alluvial gold mines in areas of our country that for a single year will show a yield of refined gold worth over \$10,000,000 at the United States Assay Office.

The accompanying illustrations of gold dredges, known in the mining industry as "gold ships," show types that are made

near the workings. These dredges cost from \$25,000 to \$75,000 each, and are employed wherever there is water enough to float them. In many instances the dredge digs the pound in which it is worked. The foreground, showing the hills (see illustration No. 6), is worked for gold by means of long lines of hose attached to powerful pumps. The streams from the hose wash out considerable alluvial gold, including good sized nuggets. There are 2,387 gold dredges of the latest patterns at work in North, Central and South America, and almost 1,500 in Asia, Australia and New Zealand. A recent report of a gold dredge worked in California is as follows: Cost of the dredge, \$50,000; worked 500,000 yards that yielded 20 cents worth of gold per yard; net profit \$83,000—being 128 per cent. per annum on investment. A miner panning alluvial gold cannot work more than one cubic yard a day, and the value of the gold therein must be at least \$3 to \$4 to pay him fair returns, whereas a dredge can make money by working over old placers given up by Chinamen content to make a dollar a day. The dredge business is in its infancy. A very small percentage of the known alluvial gold deposits has been worked by these machines in North America. This branch of mining buys india rubber goods in hose, packing, belting, boots, jackets and hats estimated, at retail prices, as amounting to \$1,875,000 a year, for all countries. Because most of the dredges and hydraulic gold mining plants are remote from sources of supplies, none but the very best grades of rubber hose, packing, belting, boots and clothing are bought.

India rubber boots, jackets, coats and hats are worn by 850,000 miners in North America in what is denominated "wet mines"—that is, mines in which, but for the pumping plants kept going all the time, the work could not be carried on. In this country's wet mines 150,000,000 tons of water are pumped every year. Estimating the annual purchases of india rubber clothing and boots and hats for the mining interest of North America, and upon the basis of known sales made by the stores maintained by a score of mining corporations whose main purchasing offices are in New York, the total sum is



GOLD DREDGING IN MONTANA.

\$18,350,000, at retail prices. For mining engineers and managers of mines, special designs in boots and jackets and caps and hats of india rubber are made of the very best materials. The most popular patterns of india rubber garments worn by miners are almost the same in design as those made for President Andrew Jackson by the Roxbury India Rubber Co., when he visited Boston in 1834.

Among the Mexican native miners there is a good demand for the old style india rubber poncho, which is a blanket



with a hole through the middle into which the wearer puts his head. All through the West and Southwest where Mexican miners are employed they prefer the india rubber poncho to the india rubber jacket worn by miners of other races. Thousands of the Cornish, Welsh and Scotch miners employed in North American mines go to their homes in the old country once a year for a few weeks, and when they return they usually bring two pairs of india rubber boots and a jacket and hat of the kind made by British manufacturers for miners. Many of the mining captains of North America who are from Great Britain and who rarely go to their old homes import what they wear in india rubber through the express companies that traverse the mining areas. The question of price is not considered by these men. They want exactly the same make of india rubber garments and boots and hats that they wore when at work in Cornwall, Wales or Scotland.

#### CARBON BLACK FROM NATURAL GAS.

At the Wilsonburg (West Virginia) plant of the Union Gas & Carbon Co., manufacturers of carbon black, that product is obtained from the flames of natural gas. This result is attained by impingement of the flames on a smooth surface and the final removal of the deposit by steel scrapers, the product being used in the manufacture of printing ink, paint and rubber.

The natural gas is furnished by a well 3,000 feet deep, at a pressure of 950 pounds. It was formerly conducted to the carbon buildings through a 4-inch main, steam power being used for the scrapers, but the initial pressure of the gas is now utilized. It is now passed through the cylinders of the steam engine, thus obviating the use of steam. The piping was rearranged and the result is said to be quicker and more uniform response on the part of the engine. It not only provides free power, but reduces the labor.

#### A SENSIBLE SIZE FOR GARDEN OR LAWN HOSE.

By F. C. Anderson, of the Electric Hose & Rubber Co.

IN the early days of the rubber business  $\frac{3}{4}$ -inch water pipe and hose bibbs, or faucets, were general in plumbing specifications, which led to the manufacture of  $\frac{3}{4}$ -inch hose as most suitable for garden or lawn use.

For many years past, however,  $\frac{1}{2}$ -inch pipe and  $\frac{1}{2}$ -inch or, the so-called  $\frac{3}{8}$ -inch hose bibbs have been used almost exclusively. Half-inch pipe is .623 of an inch in internal diameter, virtually  $\frac{3}{8}$ -inch, but, the opening through the valve seat of all  $\frac{1}{2}$  or  $\frac{3}{8}$ -inch bibbs is but  $\frac{1}{2}$ -inch, and the bent neck is usually still smaller. It is therefore manifestly impossible to get more than a  $\frac{1}{2}$ -inch diameter stream of water through the bibb, regardless of what may be the pipe size.

Half-inch might be thought the ideal hose size were it not for the increased loss of pressure through friction as compared with the loss in hose of larger diameter. Furthermore, the internal diameter of  $\frac{1}{2}$ -inch hose couplings ranges from a little over  $\frac{3}{8}$ -inch in the cast, to about  $\frac{7}{16}$ -inch in the pressed brass styles, still further retarding the water.

Three-quarter inch continues to be the principal size, simply because so few hose manufacturers make or offer an intermediate size, and the hose buyer has no choice but to buy either  $\frac{1}{2}$ -inch, which is too small for the best results, or  $\frac{3}{4}$ -inch, which is too large.



Here are three circles representing diameters of  $\frac{3}{4}$ ,  $\frac{1}{2}$  and  $\frac{5}{8}$  of an inch. I submit that it is a waste of material, money and energy to use hose of this size (Fig. No. 1) to convey

water from an opening of this size (Fig. No. 2) when this size (Fig. No. 3) will do it as well and last longer.

To determine the relative efficiency of different sizes of garden hose the following test was made, from which it will be seen that, for all practical purposes,  $\frac{5}{8}$ -inch is fully equal to  $\frac{3}{4}$ -inch hose.

#### TEST TO DETERMINE COMPARATIVE QUANTITY OF WATER SUPPLIED THROUGH FIFTY FEET EACH OF $\frac{1}{2}$ -INCH, $\frac{5}{8}$ -INCH AND $\frac{3}{4}$ -INCH GARDEN HOSE, UNDER AVERAGE CONDITIONS OF SERVICE.

Size of hose.	$\frac{1}{2}$ in.	$\frac{5}{8}$ in.	$\frac{3}{4}$ in.
Water pressure on main .....	45 lbs.	45 lbs.	45 lbs.
Time required to fill a 50-gal. tank, with nozzle on hose.....	11 min.	8½ min.	8¾ min.
Ditto, without nozzle.	9 min.	5½ min.	5 min.
Time required to supply 1,000-gal. with nozzle on hose.....	3 hr. 40 min.	2 hr. 50 min.	2 hr. 45 min.
Ditto, without nozzle	3 hr.	1 hr. 50 min.	1 hr. 40 min.

Ordinary "Gem" spray nozzle, having  $\frac{3}{4}$ -inch discharge, used in test, and hose attached to  $\frac{1}{2}$ -inch hose bibb on standard  $\frac{1}{2}$ -inch pipe.

For several years I have advocated the sale and use of  $\frac{5}{8}$ -inch hose, for the following reasons, viz.:

Five-eighths inch hose will deliver practically as much water through the nozzle in a given time as will  $\frac{3}{4}$ -inch, under usual service conditions.

Five-eighths inch hose, when full of water, weighs very much less than  $\frac{3}{4}$ -inch, and is easier for women and children to use.

Five-eighths inch hose, weighing less than  $\frac{3}{4}$ -inch, will not wear out so quickly when dragged over stone, cement or gravel walks, etc.

Five-eighths inch hose will withstand greater pressure than will  $\frac{3}{4}$ -inch of the same quality.

Five-eighths inch hose will not kink so readily as will  $\frac{3}{4}$ -inch.

Five-eighths inch hose will outwear  $\frac{3}{4}$ -inch under like conditions of use.

Five-eighths inch hose costs less than  $\frac{3}{4}$ -inch, but may be retailed for about the same price.

Nearly all hose manufacturers now make from ten to twenty grades of garden hose, necessitating the manufacture of both  $\frac{1}{2}$  and  $\frac{3}{4}$ -inch sizes in each and every grade, and the stocking of both sizes in all grades in the parent and branch houses, also in the hands of consignment agents. Whereas, if manufacturers would make the  $\frac{1}{2}$  and  $\frac{3}{4}$ -inch sizes in only the same limited number of grades in which they now make larger sizes of water hose, and sell these two sizes by the same list and discount plan, then adopting  $\frac{5}{8}$ -inch as the standard garden hose size, and the only size on which net prices per foot are to be made, they could cut their stock necessities at least one-third.

Instead of, say, 2,000 feet  $\frac{1}{2}$  and 5,000 feet  $\frac{3}{4}$ -inch in any, or all, grades, they need stock but about 4,000 to 5,000 feet of  $\frac{5}{8}$ -inch only. This would release considerable capital, reduce the remnant assortment at the end of each season and minimize the probability of carrying over to the next season some one or more grades, or sizes that had to be stocked to meet possible trade demands that failed to arise. There would be the same quantity of hose sold, both in feet and dollars, with a decided reduction in stock necessities.

Retail dealers would also welcome this change as doing away with the present necessity of buying both  $\frac{1}{2}$  and  $\frac{3}{4}$ -inch, and "guessing" how much of each size they could probably dispose of the next season. It would cut their "guessing" problem in half at any rate.

These observations are offered after some thirty-eight years' rubber experience on and off "the road."

## Cotton—Its Varieties, Geography, Market and Uses.

By Carl Geller.

THE cotton production of the world may for industrial purposes be divided into two classes—cotton having a length of fibre up to about 1 1-16 inches and that of longer staple. The first class embraces 90 per cent. of the total production and includes ordinary American Upland, Mexican, East Indian, Russian, Chinese and Turkish cottons. It is spun into coarse and medium yarns up to about 60s, which go into the great bulk of cotton manufactures for wearing apparel, household and industrial uses. It can be grown in all parts of the world where winter is not protracted, as cotton requires six or seven months of good growing weather. There must be a fair amount of moisture, either as rainfall of at least 30 inches, but not exceeding 70 inches a year, fairly evenly distributed, or supplied by irrigation; and the mean temperature during the four or five chief growing months must be from 70 to 80 degrees. As these conditions obtain over a wide area of the world's surface, the capabilities of producing ordinary cotton of the "bread and butter" variety are practically unlimited. This country alone could increase its cotton acreage from the present figure of 37½ million acres to 120 million acres without encroaching on the acreage of other agricultural products.

The remaining 10 per cent. of production embraces American Sea Island, American long staple Upland, Egyptian, Peruvian, Brazilian and West Indian cotton, also small quantities of Turkish, Chinese and Sudan cotton and American cotton grown from Egyptian seed. This class commands a large premium in price, because of its restricted production and its special character, which makes it suitable for purposes where strength and fineness are indispensable. Its special character is either due to climatic influences, to seed selection or both. Long staple cottons are used for spinning fine yarns for making sewing thread, automobile tire linings, mercerized yarns, "silk" goods and for mixing with wool.

### SEA ISLAND COTTON.

Only about 15 per cent. of this cotton is really raised on the islands along and the mainland near the South Carolina coast. The remainder is produced in a narrow belt extending from North Florida through Southeast Georgia. South Carolina, S. I. cotton constitutes the cream of the entire cotton yield of the world, as its staple attains a maximum length of 21-5 inches and can be spun into yarn as fine as 400s and 500s. Comparing with today's price of 13 cents for middling Upland cotton, fine South Carolina S. I. costs 21 cents and extra fine about 50 cents per pound. Florida and Georgia S. I. cotton has a maximum length of 1¾ inches and is suitable for spinning yarns from 150s to 300s. Its present price varies from 17 cents for common to 21½ cents for fancy. In 1911-12 the total S. I. cotton production of this country reached 123,000 bales of 400 pounds each, but this proved temporarily in excess of the demand, and as at the same time a new Egyptian variety closely resembling medium S. I. came upon the market, prices became unremunerative and in 1912 the acreage was much curtailed. Production was cut in half, and even the present crop does not promise to yield more than 70,000 bales. Present prices in Liverpool are 2 to 3d. per pound below those of last year and 1½ to 3d. below those of two years ago, despite the greatly reduced supply. The apathy of the S. I. cotton grower is further increased by the fact that his fields will soon have to pass through the ordeal of the boll weevil invasion. In view of the length of time required to mature S. I. cotton, it is feared that the ravages of the insect will be disastrous and many farmers will abandon the cultivation of the slow growing S. I. variety, planting in its stead early maturing Upland cotton.

Outside of the United States some S. I. cotton is grown in the West Indies, on the Peruvian coast and in Tahiti. To bring out the chief features of S. I. cotton—length and silkiness of the fibre—it has to be grown near the sea. If grown inland these characteristics soon disappear and it becomes necessary to obtain fresh planting seed from South Carolina.

### AMERICAN LONG STAPLE COTTON.

Until the advent of the boll weevil this variety was chiefly produced from selected seed in a strip of country about 75 miles wide and 200 miles long lying in the Mississippi Valley, between Memphis and Vicksburg. Since the appearance of this insect



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COTTON PICKING IN THE SOUTH.

many farmers have abandoned the cultivation of this long staple cotton, which requires a long time to mature and is thus specially exposed to its devastating attacks. The United States Government is making praiseworthy efforts to introduce types of prolific big boll cotton of 1¼ to 1½ inch staple and possessing the essential early maturity. Such long staple American cottons are now grown in California and Arizona, in various localities of Texas, in the Red River Valley, in sections of Alabama and also in South Carolina. Very probably with the passing of the boll weevil scare in Mississippi, the "Delta" will also revert to the growing of long staple varieties when prices become tempting again. It is difficult to estimate the total production of long staple cotton in this country. Some experts do not

think that at present it exceeds a total of 30,000 to 40,000 bales. Due to strong competition of some Egyptian varieties, prices are not as remunerative as they used to be. Compared with 13 cents for middling Upland, long staples bring from 14 to 17 cents per pound, whereas in previous years premiums of 8 to 10 cents were not uncommon.

#### EGYPTIAN COTTON.

This cotton is grown in the Nile Valley, over an area of about



Courtesy of Commercial Appeal, Memphis, Tenn.

#### WEIGHING THE DAY'S PICKINGS.

1,750,000 acres, of which 1,350,000 are north of Cairo and 400,000 south of the Egyptian capital. Egypt being practically a rainless country, cotton cultivation is almost entirely dependent upon irrigation fed by the annual rise of the Nile. In order to obtain a uniform water supply a huge dam has been built across the Nile at Assuan, but while this removes the danger of insufficient Nile floods, the abundant supply so provided has led to water-logging of the soil, and the hopes of vastly increased crops of Egyptian cotton have so far not been fulfilled. Before the completion of the Assuan dam the Egyptian cotton crop had several times reached 6½ million cantars (one cantar equals 99.05 pounds), but long after the building of the dam and with abundant water supply the crop fell in 1909-10 as low as 5 million cantars. Since 1910 the Egyptian cotton crops have averaged 7½ million cantars. At one time the present crop bid fair to exceed 8 million, but a new insect pest, the pink boll worm, has caused much damage, and not more than 7¼ million cantars are expected of this crop. The following are the chief Egyptian varieties: Ashmouni—strong, brown, silky, mean length of staple 1¼ inches, used for balbriggan underwear and

yarns to about 80s; Afifi, Nubari and Assili—brown, lustrous, strong, fine, used for yarns up to 100s and brilliant surfaced goods; Abassi—1¼ inches, pearly white, used for sewing silk; Janovitch—1½ inches, fine strong, silky; Gallini—1½ inches, strong, bright golden; Sakellaridis—1½ to 1¾ inches, a recent variety, lustrous, white and strong, closely competing with the medium grades of American Sea Island.

Of the 1,750,000 acres under cotton last year about 800,000 were devoted to Afifi, Nubari and Assili; 45,000 to Abassi, 225,000 to Janovitch, 350,000 to Ashmouni and 260,000 to Sakellaridis. It is worthy of note that while in the United States the average cotton production per acre is only about 200 pounds of lint cotton, in Egypt, under the intense cultivation prevailing there, it rises to about 450 pounds per acre. Comparing with the present Liverpool price of 7d. for middling Upland, American cotton, the Egyptian varieties in good, fair quality are quoted as follows: Ashmouni, 9¾d.; Abassi and Nubari, 10d.; Sakellaridis, 10½d., and Janovitch, 11d.

#### PERUVIAN COTTON.

There are three kinds of cotton produced in Peru—Upland, Rough and Sea Island. The staple of these three varieties is 1½ to 1¾ inches. Rough Peruvian has a fibre of 1¼ inches and is kinky, closely resembling wool, which makes it specially suitable for mixing with that material. The Upland variety is smooth and white, about 1¼ inches long and in good demand. Most of it is produced along the coast north and south of Lima. Some cotton is grown there from Afifi (Egyptian) seed also from Sea Island seed, and good results are obtained. The great drawback to the development of cotton cultivation in Peru is the



Courtesy of Commercial Appeal, Memphis, Tenn.

#### HANDLING COTTON AND COTTON SEEDS ON THE MISSISSIPPI.



lack of irrigation works. The total crop amounts to 140,000 bales, of which one-third is of the "rough" variety largely exported to the United States. Comparing with the Liverpool price of 7d. for middling Upland American cotton, good rough Peruvian is quoted at 9d., smooth Peruvian at 8d., Peruvian Sea Island and Afifi at 10½.

#### BRAZILIAN COTTON.

Two kinds are grown, tree cotton and herbaceous cotton. The principal cotton section is in Northeastern Brazil. The staple varies from 1 to 1½ inches, and in Liverpool commands a premium of ½d. over similar American varieties. The production is about 375,000 bales, of which half is consumed by Brazilian mills and the balance goes chiefly to Liverpool. While the area suitable for cotton cultivation is immense, labor is scarce and the main drawback is the uncertain and irregular rainfall, for notwithstanding the heavy rains on the Atlantic coast, the inland section, where most of the Brazilian cotton is raised, has frequently to contend with prolonged drought.

Other long staple cottons are raised in Asiatic Turkey (Smyrna), Sudan (Nubari and Afifi Egyptian), Tahiti (Sea Island) and China (Yangtze Valley, from American seed), but the quantities are so far small.

We thus find that the cultivation of low grade, ordinary and short staple cotton may be expanded almost indefinitely, but that at present at least the cultivation of fine long staple sorts is restricted—in this country by unremunerative prices and the boll weevil; in Egypt by the pink boll worm and inability to cope with the new condition of the soil brought about by the irrigation works, and in Peru and Brazil by lack of labor and inadequate irrigation. Beyond any doubt, should sufficient inducement be offered by high prices, the production of long staple cottons could be greatly increased, and steps in this direction are taken by the governments of the principal cotton growing countries.

### SOME COTTON STATISTICS.

#### THE WORLD'S PRODUCTION.

IN considering the statistical position of cotton it may be of interest to look back a little at former years. The production of the last four years in bales of 500 pounds gross has been as follows: 1909-10, 19,623,000; 1910-11, 21,321,400; 1911-12, 24,953,000; 1912-13, 23,984,000. Of these quantities the United States furnished respectively about 52, 56, 65 and 60 per cent. of the total, the balance being principally supplied by British India, China and Korea, Asiatic Russia and Egypt. About a million bales each year (or 5 per cent.) come from fifteen other countries in smaller quantity, but the chief sources are the five specified in table A. Details of the fifteen less important sources of supply are shown in table B.

TABLE A.—WORLD'S PRODUCTION OF COTTON.

	(Bales of 500 pounds gross.)			
	1909-10.	1910-11.	1911-12.	1912-13.
United States...bales	10,315,400	12,005,700	16,250,300	14,313,100
British India.....	3,878,400	3,202,400	2,631,200	3,518,400
China and Korea...	2,675,000	2,675,000	2,675,000	2,675,000
Asiatic Russia....	800,000	1,000,000	960,000	1,000,000
Egypt .....	1,008,400	1,516,600	1,480,800	1,492,000
Other countries (15)	945,500	921,700	955,700	985,500
Total (20 countries)	19,623,000	21,321,400	24,953,000	23,984,000

TABLE B.—PRODUCTION OF 15 LESS IMPORTANT COUNTRIES NOT DETAILED IN TABLE A.

	1909-10.	1910-11.	1911-12.	1912-13.
West Indies.....	12,400	13,000	13,500	13,400
Mexico .....	130,000	145,000	105,000	150,000
Brazil .....	380,000	320,000	330,000	330,000
Peru .....	115,000	140,000	140,000	140,000
South America (exclusive of Brazil & Peru)	8,000	7,000	7,500	8,000
Europe .....	12,800	13,100	14,000	15,500

Dutch Indies.....	13,200	12,500	16,000	15,000
French Indo China....	14,100	14,100	12,500	16,000
Philippines .....	6,100	6,100	6,100	6,100
Japan .....	16,900	7,400	7,000	7,500
Para .....	90,000	100,000	125,000	100,000
Turkey .....	108,000	105,000	124,000	115,000
Sudan .....	14,000	12,000	16,700	16,000
Colonial Africa.....	25,000	26,000	38,000	52,000
Oceania, etc. ....	300	700	400	1,000
Total .....	945,500	921,700	955,700	985,500

Comparing the total of the world's production for 1912-13 with that of the preceding year, it will be seen that there is a reduction of two million bales in the production of the United States, coupled with an increase of about a million in that of British India, the net difference being thus a reduction of about a million bales in the total. Again, comparing the figure of 1912-13 with that of 1909-10, an increase is shown of about 4 million bales, practically from the United States; the gain of half a million bales from Egypt being offset by a similar loss in the supply from British India. The average of the world's production for the last four years was about 22½ million bales.

#### AMERICAN PRODUCTION OF COTTON.

As has been shown in table A, the American crop not only constitutes the largest separate item of the world's product, but exceeds the combined importance of all the other components. The United States crops for a series of years are shown in table C, as increased from about 7 million bales in 1889-90 to 13,820,000 bales in 1912-13.

TABLE C.—COTTON CROPS OF THE UNITED STATES,

Expressed in Statistical Bales of 500 Pounds Net.  
(In Thousands of Bales.)

Season of	Bales.	Season of	Bales.
1889-90.....	6,888	1901-02.....	10,344
1890-91.....	8,242	1902-03.....	10,274
1891-92.....	8,526	1903-04.....	9,682
1892-93.....	6,318	1904-05.....	13,436
1893-94.....	7,115	1905-06.....	10,919
1894-95.....	9,480	1906-07.....	13,269
1895-96.....	6,798	1907-08.....	11,089
1896-97.....	8,281	1908-09.....	13,458
1897-98.....	10,775	1909-10.....	10,155
1898-99.....	10,940	1910-11.....	11,834
1899-1900.....	8,997	1911-12.....	15,876
1900-01.....	9,991	1912-13.....	13,820

These figures illustrate the growth of the cotton industry within the last quarter of a century.

The distribution of the crop of 1912-13 was as follows:

#### Deliveries to

Great Britain .....	3,509,000
The Continent .....	4,964,000
United States .....	5,389,000
Canada and Mexico.....	171,000
Japan, China, etc.....	388,000

Total deliveries ..... 14,421,000

The relative proportions of the three grades of American cotton included in the totals for the last four years were about:

	1909-10.	1910-11.	1911-12.	1912-13.
Sea Island ...bales	72,900	71,100	95,400	56,400
Upland .....	9,932,100	11,537,500	15,597,300	13,647,100
Linters .....	310,400	397,100	557,600	609,600

Total ..... 10,315,400 12,005,700 16,250,300 14,313,100

#### THE COTTON SPINDLES OF THE WORLD.

While the world's production of cotton now shows an increase of 20 per cent. as compared with the year 1909-10, the number of the world's cotton spindles increased between 1907 and 1913 from 124 to 144 millions or about 15 per cent., thus proving that the facilities for handling the larger crop have been extended (as shown in table D).

TABLE D.—COTTON SPINDLES OF THE WORLD.

	1907.	1913.
United States, north.....	16,850,000	18,500,000
United States, south.....	9,500,000	12,000,000
Canada .....	800,000	860,000
Mexico .....	680,000	775,000
Brazil .....	800,000	1,000,000
Other America .....	100,000	200,000
Great Britain .....	50,700,000	57,000,000
Germany .....	9,300,000	10,925,000
Russia .....	8,100,000	8,950,000
France .....	6,800,000	7,400,000
Austria .....	3,600,000	4,870,000
Italy .....	3,500,000	4,600,000
Spain .....	1,900,000	2,200,000
Switzerland .....	1,400,000	1,450,000
Belgium .....	1,140,000	1,450,000
Sweden, Norway and Denmark.....	560,000	650,000
Portugal .....	420,000	480,000
Holland .....	400,000	480,000
Greece .....	70,000	75,000
India .....	5,300,000	6,465,000
Japan .....	1,500,000	2,200,000
China .....	750,000	1,000,000
Scattered .....	150,000	200,000
Total .....	124,320,000	143,730,000

The cotton industry is thus keeping pace fairly well with the supplies of the material as shown by the statistics of production.

## NATIONAL ASSOCIATION OF COTTON MANUFACTURERS.

On Wednesday and Thursday, April 29 and 30, will be held the ninety-sixth annual meeting of the National Association of Cotton Manufacturers. Boston is the location selected and the sessions will be held in Paul Revere Hall, Mechanics' Building. The papers announced include addresses upon the following subjects: Improved methods in handling and dyeing raw cotton, yarns and piece goods; economy of handling material in cotton mills; prevention of decay in mill timbers; use of compressed air in cotton mills, and reducing hazards of cotton pickers.

Simultaneously with the notice of the meeting a circular has been sent out, announcing the establishment of a "Textile Customs Committee" to co-operate with other textile organizations in the enforcement of the tariff law, for which purpose a "Textile Bureau" has been established. The expenses of this movement are to be met by subscription among the members.

The new tariff law is susceptible of many and grave abuses by undervaluations of wool and cotton goods, which will call for unusual vigilance on the part of United States officers. Hence the establishment of the Customs Committee and Textile Bureau.

An exhibition of textile machinery will be held during the week of the meeting.

## RUBBER HEELS AS DIAMOND GATHERERS.

A certain society woman from the opulent west recently created quite a stir in eastern circles by promenading "Peacock Alley" in the Waldorf-Astoria wearing evening slippers in the heels of which were a number of twinkling diamonds. But, to use a distinctly modern phrase, she "had nothing on" a certain Colorado sheriff in the purlieus of Denver, who was sitting a few days ago—in the proper official attitude—tilted back in a chair with his feet upon a desk, when a friend, entering the office, discovered some sparkling object in the middle of the sheriff's rubber heel. On investigation it proved to be a diamond, valued at \$200, which the sheriff had picked up in his walks about town. If manufacturers of rubber heels don't make a strong point of this incident in their future advertising they will certainly be throwing away a golden—or more properly a diamond—opportunity for an effective appeal.

Should be on every rubber man's desk—Crude Rubber and Compounding Ingredients; Rubber Country of the Amazon; Rubber Trade Directory of the World.

## FIRE HOSE SPECIFICATIONS.

Some time ago certain specifications of fire hose were established by the National Board of Fire Underwriters, Boston. A large number of circulars was sent out to the officials in charge of fire hose purchases in cities of the United States, stating that the fire hose of two specified companies was approved by the board and also that these companies were making use of the label of the Underwriters' Laboratories, Chicago. This action of the board has been alleged to be in restraint of trade and accordingly suit was brought against the board by one of the independent companies understood to be acting with thirty or more other manufacturers of fire and factory hose.

Among other grounds of complaint it has been alleged that the board has insisted upon a detailed inspection of the materials as well as the secret and other processes used by the plaintiff. It was further contended that the use of the labels would destroy the force and effect of the trade-mark, the hose coming to be sold by reason of the label. In this way the underwriters would become responsible for the goods of the manufacturer.

The case was lately heard in Special Term in Part III. of the Supreme Court, when the court dismissed the suit on the ground that no case had been made against the board.

## INDIA-RUBBER GOODS IN COMMERCE.

## EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values of exports of manufactures of india-rubber and gutta percha for the month of November, 1913, and for the first eleven months of five calendar years, beginning January 1:

MONTHS.	Belting, Packing and Hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
November, 1913.....	\$170,142	\$87,337	\$469,560	\$727,039
January-October ....	2,157,583	1,119,793	7,189,500	10,466,876
Total, 1913.....	\$2,327,725	\$1,207,130	\$7,659,060	\$11,193,915
Total, 1912.....	2,342,738	1,245,155	7,305,234	10,893,127
Total, 1911.....	2,085,613	1,565,146	6,528,022	10,178,781
Total, 1910.....	1,918,611	2,094,016	5,193,806	9,206,433
Total, 1909.....	1,637,018	1,474,559	3,978,186	7,089,763

The above heading, "All Other Rubber," for the month of November, 1913, and for the first eleven months of three calendar years, beginning January 1, includes the following details relating to tires:

MONTHS.	For Automobiles.	All Other.	TOTAL.
November, 1913.....	\$134,083	\$43,721	\$177,804
January-October .....	3,481,131	504,875	3,986,006
Total, 1913.....	\$3,615,214	\$548,596	\$4,163,810
Total, 1912.....	3,034,699	544,477	3,579,176
Total, 1911.....	2,257,727	526,653	2,784,380

## TESTS OF SPLASH-GUARDS IN PARIS.

The Paris General Omnibus Co. has been investigating the advantages of splash-guards for use on motor buses, 1,000 of which are said to be in operation in that city. Out of 300 appliances submitted to the company's engineers, 47 were selected for further trials, which were to be made at the company's expense on buses in daily service. Readiness was expressed to make further trials at the expense of the inventors, if the latter provided the appliances for that purpose.

It is being sought to define the ability of the guards to withstand the daily wear of city streets and the constant contact with curbstones. It is understood that should the tests prove that a practical and economical guard has been devised, their use will be made compulsory on all public vehicles. It is not proposed to enforce their adoption on private cars.

A general similarity distinguishes the splash-guards submitted for trial. They are either a rectangular piece of leather or canvas, hanging from the hub cap, or a deep circular ring of rubber or canvas, or a combination of both.

## Difficulties and Dangers of Balata Gathering—Canoeing Up the Maroni River in Dutch Guiana.

*By a Resident Correspondent.*

ON a recent trip up the Maroni River we had an opportunity to witness how the enormous balata crop is gathered in the forests of Surinam and exported to the markets of the world. From the beginning to the end the work of producing and handling the product is most interesting, to say nothing of the risks and dangers attendant upon its safe transportation to the shipping port.

The balata districts on the Maroni are situated in a land of high and rugged mountains and valleys, extensive savannahs and fertile plains, where the grasses are ever fresh and green.

Twelve hours in a Government steamer—from Paramaribo, the



WATERFRONT, ALBINA.

capital of the colony—brings one to Albina, a little town situated about 90 miles from the mouth of the mighty Maroni River, and the starting point for the balata fields. At Albina all arrangements are made for canoes and bush negroes to convey the expeditions up the rapid and dangerous river.

Leaving Albina with its queer, mixed population, we entered an altogether savage world, encountering very few civilized people during the two months of our trip. For the first few days we journeyed part of the night also, but we soon found this very dangerous, for there are many obstructions in this part of the river; and the lookout man—sitting at the bow of our canoe—who was supposed to keep a sharp eye, often fell asleep, with the result that both our lives and our property were imperiled.

In the daytime we often indulged in fishing with hook and line, as our blacks poled or paddled slowly up-stream, and usually we caught very large fish—so large, indeed, that one was sometimes sufficient to make two meals for our party—which comprised eight men all told—notwithstanding our enormous eating capacity.

As there were many kinds of water and tree fowls along the river, we dined frequently upon game. At other times, wishing a still greater assortment of food, and to enjoy the chase, we landed on the banks for a few hours to hunt deer, pigs, tapirs and the like. One morning, a fine pig having been taken in the thicket near the edge of the river, we landed on the first sandbank for breakfast. Getting ashore, a few of our men set to work at once to prepare the pig, while the others watched the operation.

These pigs subsist entirely upon wild fruits and vegetables, and the meat is excellent, especially if the animal is young. They have no layer of fat under the skin, as does the domestic pig.

Some varieties roam about singly, while others go in herds of one or two hundred.

When an enemy approaches one of these herds the alarm is given and they instantly arrange themselves in line of battle and advance to the attack, tossing their tusks constantly from side to side, grunting and snuffing and emitting a disgusting odor. If the enemy does not quickly make his escape he will be mangled. Jaguars always skulk near these swine bands, for they have but to steal up and seize a pig whenever they wish to dine. These great cats seem to know well the danger of an attack by the pigs, so they act discreetly. When one is hungry for pork he conceals himself close to the line of march of the swine, lying in wait until the entire herd files past; then, as the last pig is passing, he springs suddenly upon it, breaks its neck, drops it and scrambles up a tree. The unfortunate pig, of course, utters a squeal of alarm when seized, so its companions at once form in battle array and advance upon the foe. Soon they encircle the spot where the victim lies dead, but seeing no enemy they again form into line and move on. The jaguar then descends and enjoys a quiet meal.

As we travelled on we passed fine grazing lands, that appeared like beautiful meadows; then groves of shade trees, where we almost expected to see a farmer's house; and finally tracts of dense forest, where the branches of the huge, spreading trees were heavily draped and festooned with enormous masses of climbing vines. One of the many things that attracts one's attention in the forest of Dutch Guiana is the great spread of the branches of the trees, for they frequently appear to reach out from the trunk 70 or 80 feet.

We often landed at some charming arboreal palace to prepare and eat our food, for, on the rocks and sandbanks we



FIRST LINE OF RAPIDS, MARONI RIVER.

could not always obtain fuel, and were, moreover, exposed to the blistering heat of the sun. At such times, when we were not troubled by insects, we enjoyed a delightful picnic, with which our jungle banquet was in keeping. Occasionally we were forced to pass the night in the forest.

Late one afternoon we disembarked in the forest for dinner; but before we had finished our repast a storm broke and darkness closed in quickly upon us—darkness, too, that could almost be felt—obliging us finally to grope our way among the trees.



It was unsafe to re-embark, so we hastily hung our hammocks while we could still see a little. Our company of canoe men stretched themselves side by side on the ground, forming a human carpet, over which we were suspended, like judgment. The dripping of the rain from the leaves of the trees, the moaning and sighing of the wind through the forest and the incessant rumble and boom of the thunder made sleeping difficult. Soon the stratum of humanity on the ground was snoring loudly, undisturbed even by the bats that bled them on the toes. Some time after midnight, because of the stillness, we gradually became conscious of the fact that the storm had ceased, and the snoring also had ceased, but was succeeded by a continual slapping, for the mosquitoes had come in clouds, now that the rain and wind had stopped. "Let us go to the water front!" exclaimed the head canoe man to his companions, and the spot was promptly vacated by all but ourselves. They believed they would be free from the little pests in the open air, for, under the trees or in a house or tent they are a great torment all night long, whereas in the open air they are much less active. This time, however, there were myriads of mosquitoes in the neighborhood



LANDING PLACE OF DJOEKA VILLAGE, MARONI RIVER.

of our camping ground. Sleep was impossible; and tho the darkness was still so dense that we had to feel our way down to the river, we struck camp, tumbled everything into the canoes, then, casting ourselves into the arms of the great, silent flood, began poling rapidly away.

We saw the track of the tapir everywhere, but did not have the good fortune to capture one while on the Maroni. They always made for the water at full speed when alarmed, remaining below the surface a surprising length of time. When the jaguar springs upon the back of the tapir and tries to break its neck he sometimes fails, for its neck is short, very thick and strong. It rushes madly toward the river at such times, dashing among the trees and through the dense underbrush, bolting under fallen trunks and bumping against some in a manner most unpleasant for its ferocious rider, so that he is usually glad to seize the first opportunity to dismount. The jaguar is known to have been killed in one of these wild stampedes, its neck being broken in collision with a tree. We have heard of such a horse and

rider tearing through an encampment and among hammocks occupied by sleeping men.

We were often entertained at dawn by monkeys roaring their morning anthem. The great volume of sound seemed to indicate that there were a dozen of these vocalists, when in truth they were but two, and only a quarter or half a mile distant. There are 30 or 40 varieties of monkeys in the hinterlands of Surinam, most of which will never be seen in zoological gardens, for they cannot live in captivity, not even in their native land. We frequently saw colonies of one kind or another climbing about among the tree-tops or sitting on their haunches observing us.

One day we sighted far up the river in advance of us what appeared to be two lines of soldiers drawn up at the water's edge. Studying the objects with a field glass we found them to be a line of giant storks standing at the margin of the river waiting to seize their breakfast of fish. They are as tall as a man, and standing in line their uniform black heads, white breasts and long black legs gave them a decidedly military appearance. The reflection in the water gave the illusion of a double line. I believe this is the largest bird that flies. It must have a long, clear space, or it cannot rise. From standing humped up, like a goose on a cold day, it takes a few hesitating steps, then several determined strides, then breaks into a run, followed by a long series of big jumps and flapping of its huge wings, until, finally, it gets clear of the ground.

As we travelled along late one evening we noticed a light some distance ahead and heard shouts coming from a sand island. Fearing that the shouting originated from unfriendly natives, and because of the darkness, our first thought was to pass on and not land. But a moment later we discovered that they were a friendly fishing party, so we went ashore. As we drew near to land our head man sang one of their familiar tribal songs. It was a joyful strain, tho extremely peculiar, suggesting, somewhat, the running and bleating of a deer. It is usually sung for the purpose of announcing to those on shore that visitors are arriving, that they are friendly and that they are happy to meet their friends on land. Our trumpets were also sounded and we played an English air on the flute. Our arrival appeared to give the fishing party much pleasure. The first thing they asked for was rice and fish hooks. They were all in nature's dress, except the captain of the band, who wore loin clothes.

Continuing our voyage at dawn we encountered before noon another cluster of natives in a hut on a sand island. Before we could get ashore they ran out into the water to meet us, and surrounding our canoes eagerly offered us cassava bread and bananas in trade for what they supposed we had.

We passed the next night at another group of huts on the mainland. The "Djoeakas," who were very cordial, were expecting us, for the news of our approach had preceded us; so they gave us a royal welcome. The chief of the village—if I may call it one—appeared arrayed in a complete suit of civilian's clothes, consisting of white linen trousers and vest, black coat and hat. These he wore merely as decorations, not as a covering, for these people consider themselves fully and properly dressed without any such apparel. It was a remarkable sight indeed to us to descry in the gloaming, as we approached the land, what appeared to be a well dressed representative of advanced civilization entirely alone in a remote herding wilderness, surrounded by nude and painted savages. He had obtained these garments somewhere from a trading boat. We were escorted in state to a large hut where were assembled all the human inhabitants of the place; and after the reception we witnessed the wrestling game of which the Djoeakas are very fond.

These people hovered about us in their canoes most of the time as we travelled. When possible we avoided eating our meals at their encampments, as we would have to share our food with them, and our supply of rice and potatoes was only sufficient for our own requirements.

A Djoeke village we visited near the mouth of the Gonini River, a branch of the Maroni, is so remote and out of touch with civilization that the inhabitants understood scarcely anything of the local Dutch language. Nor are they cordial to strangers, regarding them, instead, with suspicion, for the reason that they are subject to attacks by the Indians, who live up the Gonini.

While we were calling here one of the women sought to obtain a shirt from us for her young son. To make us understand what she wanted she used the sign language, imitating one's



EXPANSE OF STILL WATER, UPPER MARONI.

movements when a mosquito bites him on the shoulder and he crushes it, the drawing on of a shirt and the feeling of contentment when "mosquito no bite more."

An umbrella aroused the curiosity of the savages wherever we went. Knowing that it opened somehow, one of them took it once and stood it point downward, apparently expecting it to open. As it did not do so he passed it to me to show him and his companions how it worked. As we opened it suddenly and it spread its wings, like some old, black goblin about to fly on an evil errand, the women uttered a low scream of fear and surprise. They often felt my linen coat and trousers, and my shirt, then made signs to me that these articles were very good to protect one from the flies and mosquitoes. They evidently thought that this was my only reason for wearing clothes. They also fingered my hat and boots, and pulled my mustache to ascertain if it were real or false, and gazed at us as we wrote our journals, for writing was a mystery to them. To many of them we were queer objects well worth going a long way to see.

Our experiences on the journey up to the balata concessions could fill many volumes; suffice to say we met with many rare people and experiences before arriving at our destination.

It is only after a trip such as we took, up a dangerous river and through the heart of the finest balata country in the world, that a fair conception of the industry can be grasped and an idea of the value of this wonderful substance obtained.

Arriving at a landing named Cottica, on the left bank of the Maroni, we obtained our first sight of the enormous sheets of balata, already tied up in bundles ready for transportation to Albini. They were of a dark brown color and looked as if they had undergone rough usage on their long trip through the forest to the river front, but on the other hand extraordinary care is taken in handling the parcels when descending the dangerous rapids.

All the balata is brought down the river. The canoes, if properly loaded, will hold about five tons of freight, and the crew, which consists generally of two black natives (Djoeakas), who are skilled river men, take chances on riding over the smaller rapids. We have watched them coming down the center of the river at racing speed, the paddles all in their positions on the gunwales, and when they approached a rapid the men would

work like mad to force their boat into the smoothest part of the current. Then the excitement was intense, as they shot down the steep incline like a mill race and went bounding over the great billows below, and finally entered quiet water again. They are not always lucky enough to come through so easily, however, as a wave may wash over the sides of the canoe or they may not be able to avoid some of the rocks and sunken timbers which abound in the dry season. Then a tragedy usually follows and the boat, balata and crew are lost. The balata sometimes may float in the water, but in most cases if the canoe sinks the cargo is lost forever.

The more conservative shippers generally insist that great care must be taken and compel their men to land above the rapids and either transport the balata around on land or lower the canoe down by means of ropes. When one considers that there are over 25 bad falls in these rapids and numberless minor swift places, one can realize the expense and risk on a cargo of balata worth, say, \$6,000, going down the Maroni River.

After a stay of two weeks on the concessions, making a general study of the methods employed in gathering the latex, we made up our minds to return to civilization. The tramp out to the river landing occupied nine hours of steady walking.

On our return voyage we passed 26 rapids, many of which were very dangerous. To pass these rapids we let ourselves down at times by means of a rope anchored to a rock, some of the men wading in the water and guiding the boat; at other times we shot over shallow places, scraping the bottom; again, we bolted headlong through narrow, rock-bound gateways, with destruction pressing us hard on both sides; again, we dashed madly, but with unerring aim, between great rocks that barely let us slip through; again, we tore at break-neck speed through a long, narrow channel where the outcropping reefs formed high walls on both sides; again, we flew along close upon some island, with the bushes raking us from stem to stern, and dodged skill-



TRAIL THROUGH THE BUSH TO BALATA CONCESSION.

fully around short bends in order to avoid sunken rocks; again, we glided carelessly down rapids, where the water was deep, then caught ourselves by means of the poles and the exercise of great strength and dexterity, checking our progress completely, with destruction yawning for us just ahead and the current pulling us that way almost irresistibly; again, we rushed fearlessly through narrow passages with the angry waters washing our decks and whirlpools just beyond to the right and left; and finally, we floated calmly and slowly onward where all was quiet and peaceful and all danger was passed, and the canoe men either stretched themselves on the bottom of the canoe to rest or played games or sported in the water like river monsters at play.

## The African Rubber Industry.

OWING to the number of sources of supply comprised in the African Rubber belt it is necessary to consider them individually. England, Belgium, France and Germany all have their share in the financing of the production, which, generally speaking, is declining as to wild rubber and making headway with the plantation variety.

The inferiority of African crude rubbers to those from South America has been attributed to defects in preparation rather than to the quality of the trees or vines. It has been suggested that a better article would soon appear if the dirty and inferior grades exported were rendered unsalable by the imposition of a graded export tax at port of shipment.

In view of the difficulty of controlling the methods of native collectors, apprehension has been expressed of the gradual extinction of African wild rubber. That these anticipations are justified is shown by the latest report of the Chief Commissioner of Ashanti upon the rubber industry of that country, according to which some 952 tons of rubber were exported in 1912, against 1,206 tons in 1911. The decrease was due to the systematic over-tapping of the wild rubber trees, which has been carried on by the natives ever since the industry commenced. It is considered likely that the production of wild rubber in Ashanti will continue to decrease, to be gradually replaced and superseded by plantation rubber. While the exports of rubber thus dropped off more than 20 per cent., exports generally from Ashanti showed an all-round increase of 25 per cent.

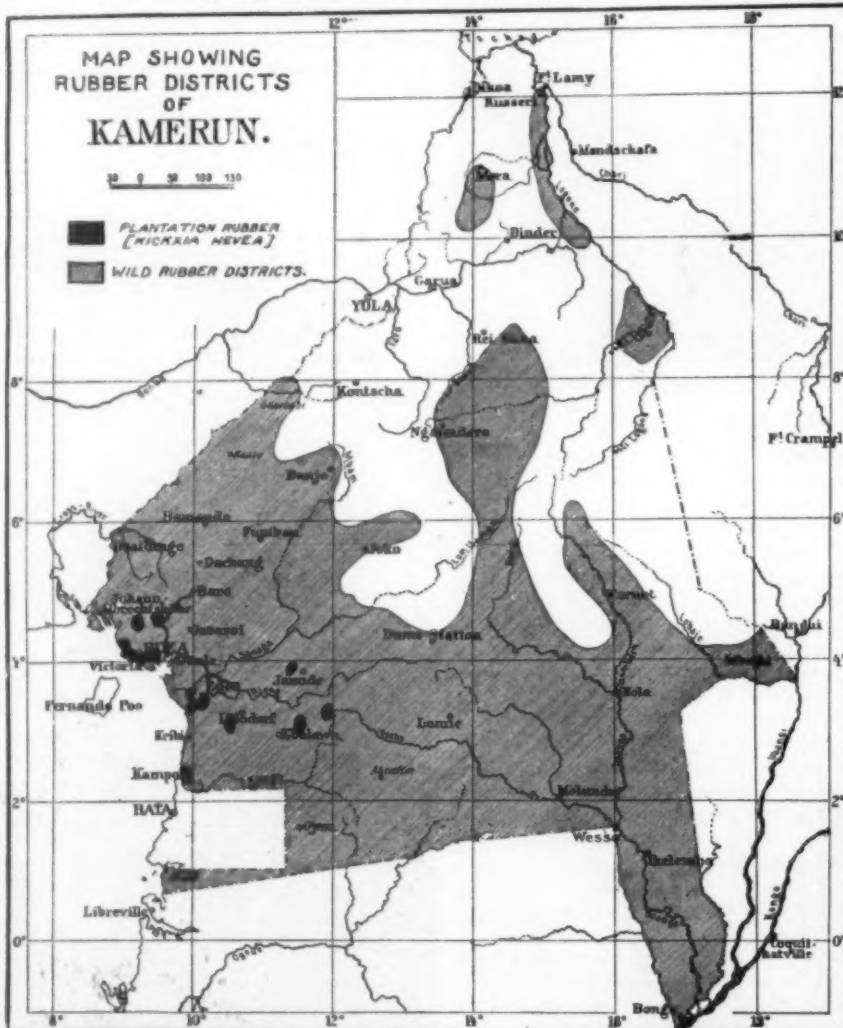
According to the last report of the Agricultural Department of the Gold Coast, the department was maintaining five agricultural stations; one in each of the three provinces of the colony, one in Ashanti and one in the Northern Territory. The total number of plants and seeds distributed to applicants

during the year 1911 by the Department was as follows:

	Plants.	Seeds.
Pará rubber .....	43,455	94,115
<i>Funtumia</i> rubber .....	8,898	3,930,000 (262 lbs.)

Supplies of Pará rubber seeds (*Hevea Brasiliensis*) were far short of the demand, in spite of the fact that the trees at Tarquah gave a very fair crop of seeds. This variety was most frequently specified in requests by European plantation companies.

The report of the Agricultural Department of Southern Nigeria for 1912 states that the rubber under cultivation in that country is chiefly confined to *Hevea Brasiliensis* (Pará) and *Manihot Glaziovii* (Ceará), while, *Funtumia elastica* and several species of *Landolphia* and *Ficus* are indigenous and occur in fairly large quantities in various parts of the protectorate. The moist zone is eminently suitable for the growth of *Hevea Brasiliensis*, and should that cultivation be seriously taken up there is little doubt that Southern Nigeria would have a prominent place as a plantation rubber producing country. The department has two small Pará plantations of about 3,000 trees each of tappable age; one at Agege and the other at Calabar. On these



MAP REPRODUCED FROM REPORT OF THE COLONIAL ECONOMIC COMMITTEE, BERLIN.

trees it is proposed to carry out extensive tapping experiments.

Two fungi have been found in the colony of Southern Nigeria, causing decay of the roots of the Pará trees (*Hevea Brasiliensis*). Ceará rubber (*Manihot Glaziovii*) has done exceptionally well at the Moor plantation, to the climatic conditions of which it appears particularly suited.

By the latest report of the Department of Agriculture of the Uganda Protectorate, the area planted to rubber is extending rapidly, with *Hevea* trees in the lead. A small proportion of the plantation Pará has now reached a tappable size, the trees being very healthy, tho growing rather slowly.



Planters are uncertain as to the advisability of planting *Manihot Glaziovii*. A point of importance is that the area of the Protectorate over which the Ceará tree grows freely is much greater than that suited to other kinds of rubber; Ceará gives a quicker return than other varieties.

Statistics of the comparative exports from Uganda for the years ending March 31 show the following results:

	1911.	1912.
Wild rubber .....	99,700 lbs.	31,000 lbs.
Plantation rubber .....	62,000 "	233,000 "

Reports from Nyasaland state that the cultivation of Ceara rubber is gradually emerging from the experimental stage. Exports of cultivated rubber show a satisfactory increase, consisting almost entirely of Ceará, the Pará rubber not having attained the age for tapping. The total area under cultivation amounted in 1912 to 8,896 acres, of which 7,659 were under Ceará. The exports of uncultivated rubber were chiefly the product of the *Landolphia parvifolia*, extracted from the underground parts of the plant by combined mechanical and chemical processes, and being superior to the wild rubber exported from other parts of Africa.

A reduction of 50 per cent. is being made in the freight rates on rubber conveyed down stream on the Lualaba river (Belgian Congo); while a like reduction is being made on rubber carried by government steamers over the basin of the Upper Congo.

The budget of the Belgian Congo for 1914 shows an estimated deficit equaling \$4,000,000. While this deficiency is partly caused by increased charges for interest, it is likewise partially attributed to the smaller collections of duty anticipated. Shipments of rubber from the Belgian Congo to Antwerp for 1913 were 2,880 tons, against 3,230 in 1912; while the exports from the French Congo to Havre were 1,142 tons, against 1,077 tons in 1912.

#### GERMAN AFRICAN POSSESSIONS.

The German possessions in Africa which are interested in rubber are: German East Africa, Togo and Kamerun, the capital engaged coming chiefly from Germany. At a recent meeting held at Berlin, representing these interests, the various questions now affecting the rubber industry in German Africa were fully discussed. German capitalists with investments in *Manihot* rubber in East Africa have felt the effects of the large shipments of *Hevea* rubber from the Middle East and the consequent fall in values.

East African planters have been placed in a difficult and serious position. Of late years they had devoted themselves energetically to the cultivation of *Manihot* rubber, with the result that present estimates place the number of trees at 19 million, one-half of which have reached maturity. These 10 million trees are estimated to have produced 1,000 tons of rubber for export in 1912.

Among the elements of cost which planters find it necessary to reduce, labor forms an item of importance. In this connection, stress has been laid upon the lengthening of the workers' contracts. The term has been prolonged to a year, but of 365 working days and not 365 calendar days; a difference resulting from the fact that laborers in East Africa practically only work on alternate days. On the Malay Peninsula, Chinese workers are hired for a term of three years. It has been suggested to bring young laborers from the coast for long terms, but against this proposal it has been urged that they would not like to be absent three years from their families. Another plan has been the suggested importation of Portuguese laborers, through the assistance of the German government.

One difficulty in establishing the cost of production is the inequality of the quantity brought in by individual tappers, experienced workers often gathering twice as much as young hands. It is generally conceded that the prospects of the East African rubber industry depend upon reducing the cost of production. Whether the reduction thus established would be sufficient to

maintain the industry, would naturally be governed by the course of the market.

Tapping experiments commenced upon good trees by skilled tappers were not found to correspond with the later results, obtained under different and less favorable circumstances. Planters have been fully alive to the necessity of establishing and maintaining uniformity of quality, if East African rubber is to hold its own in the world's markets. A difficulty has, however, been indicated, arising from the lack of regularity in tapping



A PARTY OF TAPPERS, AND THEIR IMPLEMENTS.

results, there being a difference between the quality of the latex obtained from trees of various ages and at different seasons.

Several of the speakers at the recent Berlin conference pointed out that the opinions of individual planters do not coincide as to the most advantageous method of preparation. Differences in quality of rubber place it at a disadvantage; variations proceeding from the coagulant employed. At various times carbolic acid and acetic acid have been used, but these have of late been superseded by chloride of calcium, which produces an excellent quality of rubber. It has the advantage of being cheaper than other coagulants, but pays a 10 per cent. duty in East Africa.

Attention was called to the fact that the variation in its quality is a serious detriment to East African *Manihot* rubber, manufacturers being averse to making up compounds which they cannot be sure of repeating. One speaker remarked:

"No doubt exists that East African rubber, if rightly prepared, is a serviceable material. We have in Germany, as well as in America and England, manufacturers who, if it is placed on the market after being properly collected and prepared, would prefer it to *Hevea*, especially as they can buy it cheaper. . . . As medium African qualities cannot be delivered at today's prices, shipments will be restricted, which fact will send prices up."

In commenting on this subject, one authority urged that East African rubber had grown in favor with manufacturers, who would have used it more freely if they could have depended on getting the same quality again. According to his view, all rubbers which have been experimentally washed in East Africa, have proved unsatisfactory. This is due to the fact that *Manihot* rubber, when once washed, will not keep. He expressed disapproval of the proposal submitted to the Government for putting up a washing plant in the northern district of German East Africa at an expense equaling \$150,000 to \$175,000, while the plant could be erected at Hamburg for one-quarter the amount.

Rubber planting in Kamerun dates from the discovery by Professor Preuss in 1898 of the *Kickxia* in the elevated parts of the country. In the beginning of 1912 the Kamerun plantations had 4½ million trees, or one-half million less than a year before. The cause of this reduction was partly due to interplanting of *Kickxia* with cocoa.

As to *Hevea*, the opinion was expressed that provided longer contracts were permitted by the government, the cost of production in German East Africa would be about on a level with that in Eastern Asia.

Most Kamerun rubber plantations have the advantage over those of Asia that they have a supplementary crop, but this gain is partially offset by the restricted yields of the *Kickxia* and the immature age of the *Hevea*.

The deficient means of transport for provisions operates injuriously on the wild rubber industry of South and New Kamerun, the construction of new railways being intended to

remedy these conditions. Exports of rubber from Kamerun were: 1910, 1,960 tons; 1911, 2,700 tons.

At the meeting the following resolution was adopted as a result of the discussion:

"The present depressed state of the rubber industry in South Kamerun causes the Imperial Economic Committee to request the temporary suspension of the duty on rubber exports from Kamerun.

Rubber, it is officially stated, is of much less importance for Togo than for German East Africa and Kamerun, exports for 1911 and 1912 being about 180 and 100 tons, respectively.

## The Editor's Book Table.

THE CHEMISTRY OF RUBBER. BY B. D. PORRITT, B. SC. (London). London, 1913. Gurney & Jackson. [Cloth, 96 pages, 7 x 5.]

IN his position of chief chemist to the North British Rubber Co., Limited, of Edinburgh, Mr. Porritt has had exceptional facilities for the compilation of this valuable handbook—chiefly intended for those interested in rubber from a chemical point of view. Altho the treatment of technical practice has thus been limited, the details given afford a clear insight into the chemical questions involved in that branch of the subject.

Mr. Porritt divides his comprehensive work into six sections, covering the entire ground. Under the first two he deals with the properties and constituents of crude rubber, as well as its purification, constitution and derivatives. The two next sections discuss the methods and theories of vulcanization, including the constituents of mixings, hot vulcanization (with admixed sulphur), cold cure (with sulphur chloride), absorption theory of vulcanization and other important points.

With the fifth section a subject of more general interest is reached. Waste rubber may be broadly divided into two classes: (a) unvulcanized, (b) vulcanized. The radical difference between the two is that the former is soluble in solvents and is soft and plastic, while the latter cannot be obtained in solution without treatment entailing molecular destruction.

Unvulcanized waste consists of trimmings from shoes, football bladder sheet and other material. It generally contains no fabric and is used in the factory without treatment. In some cases it is necessary to remove the fabric before the proofing becomes available. This is effected by treatment with naphtha, wringing and subsequent evaporation of the solvent.

Vulcanized waste rubber may contain the following constituents: vulcanized rubber, inorganic filling agents, free sulphur, organic matters and foreign material. This waste is, moreover, non-plastic, and will not mill on the mixing rolls. As it is already compounded, its use is necessarily limited to a particular class of goods. It has thus been the aim of every inventor in this field to remove all the combined sulphur and fillings, obtaining the rubber portion in its original plastic soluble form.

The final section, treating of synthetic caoutchouc, deals with the preparation of isoprene and butadiene, as well as the obtaining of rubber from isoprene and its homologues. This monograph in its convenient form will prove of value to all interested in the chemistry of rubber, in theoretical or practical form.

INDUSTRIAL RESEARCH IN AMERICA. BY ARTHUR D. LITTLE, Boston. 1913. [Paper, 8vo, 23 pages.]

In the address recently delivered by Mr. A. D. Little, as president of the American Chemical Society, at Rochester, N. Y. (and now reprinted), he touched upon the origin and development of the principal inventions on which modern industry is

founded. Referring to that of automobiles, he mentioned the fact that one tire manufacturer spends \$100,000 a year on his laboratory, thus indicating the value of industrial research to that industry.

DER MANIHOT-KAUTSCHUK (MANIHOT RUBBER). BY PROFESSOR DR. A. ZIMMERMANN, Director of the Imperial Agricultural Institute, Amani, German East Africa. Jena, 1913. Gustav Fischer. [Paper, 342 pages, with 149 illustrations.]

In this comprehensive volume Professor Zimmermann has told the story of *Manihot* rubber, under the various aspects of its botany, distribution, cultivation, diseases, collection and prepara-



MANAGER E. KÖHLER, STANDING BESIDE 11-YEAR-OLD *Manihot Glaziovii* TREE ON LEWA PLANTATION (G. E. A.).

tion. As it is known, there are 129 varieties of *Manihot*, of which 6 contain rubber—these being the following: *Glaziovii*, *Dichotoma*, *Pianhyensis*, *Heptaphylla*, *Violacea* and *Preciosa*. Of these the first four are the most important.

*Manihot Glaziovii* was discovered by Dr. Glaziov, the French

botanist, and was first described by Müller, of Aargau. According to Ule, it is indigenous to the Brazilian states of Rio Grande del Norte, Parahyba and Ceará, being chiefly known as Ceará rubber, or as Manicoba Ceará. In its natural home it attains a height of 50 feet, with a girth of 5 feet; some trees being 100 years old.

*Manihot Dichotoma* was discovered by Ule in the southeastern part of the state of Bahia, and derives the name of Jequié Manicoba (or Jequié rubber) from a small town in the center of the district in question.

*Manihot Piauhyensis* is found in the southeastern portion of the state of Piauhy and is also known as Manicoba de Piauhy. The trees are small, from 7 to 16 feet high.

*Manihot Heptaphylla* was discovered by Ule on the right shore of the river San Francisco and is therefore known as San Francisco Manicoba.

Following the above botanical descriptions is a table showing the exports of *Manihot* rubber from Brazil from 1903 to 1908; the later year showing the total as 2,166 tons, of which 1,249 tons were exported from Bahia.

The cultivation of *Manihot* rubber in various countries is next dealt with, German East Africa taking the first place as to extent of plantations and quantity exported. The variety most largely cultivated is *Manihot Glaziovii*, the development of which is chiefly due to the efforts of Herr Köhler, of the Lewa plantation, which contains some trees planted in 1893.

The author has dealt in an interesting chapter with the cul-

Nyassa, Zanzibar, Uganda and other countries. The other varieties of *Manihot* are likewise considered in a similar manner.

Apart from the question of distribution, the author has treated the preparation, coagulation, drying, smoking and washing of rubber, and the various forms of rubber testing. He has in-



A *Manihot* PLANTATION, 11 YEARS OLD, MUHESA (G. E. A.).

cluded statements of plantation costs and yields of the various descriptions of *Manihot* in different parts of the world.

The text is supplemented by 149 well executed illustrations. Tho devoted to the subject of *Manihot*, the work contains much matter of general interest to the rubber expert and is one of the most valuable recent contributions to the technical literature bearing on that subject.

#### AMERICAN FLAGS AND COATS OF ARMS.

The Pan American Union, of Washington, and the Pan American Society of the United States, located at New York, through John Barrett, director general of the Union, and Frederick Brown, secretary-treasurer of the Pan American Society, have issued a handsome little octavo bound in stiff board with leather back and corners, giving the flags and coats of arms of all the different American republics, starting with Argentina and Bolivia, and coming down to the United States, Uruguay and Venezuela. A whole page is devoted to each country. The flags and the coats of arms are reproduced in the proper colors, and it is altogether an effective and attractive book, valuable for the reference library.

#### BUREAU OF FOREIGN AND DOMESTIC COMMERCE.

In the form of an interesting booklet (Miscellaneous Series—No. 8 C) the Bureau of Foreign and Domestic Commerce, Washington, D. C., has published an outline of the facilities afforded by this branch of the Department of Commerce for the development and extension of American exports. As it will be recalled, a corps of commercial agents of the bureau is employed in the investigation of trade conditions at home and abroad.



*Manihot Glaziovii*, 6½ YEARS OLD, AMANI (G. E. A.).

tivation of *Manihot Glaziovii* outside of German East Africa; particularly in Brazil, Colombia, Mexico, Trinidad, the Bahamas, Hawaii, South Sea Islands, Java, Sumatra, Formosa, Ceylon, India, Burmah, Soudan, British and Portuguese West Africa,



### THE RUBBER TRADE IN BOSTON.

*By a Resident Correspondent.*

BOSTON is probably having its full share of what trade there is going, and is proportionally busy. The business of various lines of rubber manufacture is rather unequally divided; some producers of rubber goods are actively engaged, while others could handle more business. The clothing makers are particularly busy, with orders ahead; and the waterproof fabric makers are also running to large outputs. Some of the tire men report good business, but others are not enthusiastic over present conditions. The makers of hose and belting report trade good on the former and only moderate on the latter lines. Drug-gists' sundries are in good demand.

The footwear manufacturers in this vicinity have not been overburdened with orders, as the winter had been unusually mild and snowless until the middle of last month. The severe storms at that time started up the retail demand, but as most distributors, both wholesale and retail, were well stocked, the demand did not affect the manufacturers as much as they could wish. However, it enabled them to diminish the stock of floor goods holding in their warehouses.

Boston has a new mayor. The one who retired in January made for himself a wide reputation for tirelessness. He originated the phrase "Bigger, better, busier Boston." It is a handicap to any man to succeed such a hustler. But the new mayor is endeavoring to live up to the standard of his predecessor and "to go him one better," and his slogan is "Boom Boston." Therefore he is holding public meetings at which he appeals to business men to contribute to a fund to bring industries to Boston, by ways familiar to town-boomers.

As this journal has no partisan interest in booming any particular city, the above facts would have no place in these columns were it not for the fact that at one of the early meetings the mayor stated that he had received a letter from a gentleman well posted in the rubber business, who wrote that much of the crude rubber used in the various rubber industries was shipped from producing points in the far east and from South America to London and then reshipped to New York, and again to Boston. He believed there was a good reason for establishing a sort of central receiving station in Boston for this commodity, and for importing direct, thereby making a saving in commissions and freight of fully five cents a pound; advising that a committee be appointed to investigate the situation and report. At present writing no action has been taken on the matter.

In the Sunday "Herald" of the issues of February 15 and 22 appeared long interviews with Dr. Hamilton Rice, of this city, who has recently returned from the last of a series of expeditions to the wildest part of South America—the great divide which lies between the Amazon and the Orinoco River basins—mainly for scientific research. The account of his travels in the jungles, his trials and difficulties, and the indomitable spirit with which he overcame them, makes excellent reading, especially for those who know more or less about the difficulties of travel in the torrid wilderness and are posted on tropical vegetation, particularly rubber.

On his journey he was greatly helped by members of a community of rubber gatherers at San Jose, on the river of that name, at the juncture of the Guaviare River, who guided him to Calamar, 45 miles south, where he met the agent of the Colombian government, who had been sent there to investigate the condition of the Indian rubber gatherers. Through him Dr. Rice met Gregario Calderon, a pioneer in the rubber trade of that region, and who at one time was wealthy, but whose fortune was said to be lost through the trickery of men with whom he dealt. Calderon became his guide through the miles and

miles of dense thicket—encountering fever, hunger, mutiny, but pushing on until the headwaters of the Ajaju river were discovered and located, as well as the sources of several other rivers. That expedition lasted an entire year, and only whetted the doctor's appetite for adventure, for later he made another expedition along the other rivers of that region, and had even more startling adventures. However, he has returned safely, having accomplished much for science, for which he has received deserved recognition from the Royal Geographical Society and several other scientific associations. He lays much of his success to those engaged in rubber gathering in the wild regions he has traversed.

When Malden wants anything done the rubber men are called on to help. Just now a committee is carrying on a campaign against vice in that city. The committee in charge is under the chairmanship of E. F. Bickford, for many years in charge of the manufacturing of the Boston Rubber Shoe Co. So vigorous has been the work of this committee that the Board of Trade at one of its recent meetings declared that the city was being harmed by the circulation of exaggerated stories, and a committee was appointed to investigate that phase of the question, that committee including Walter E. Piper, superintendent of the Sells factory of the Boston Rubber Shoe Co., and ex-Mayor George H. Richards, who, it will be remembered, was for many years connected with that concern, during the life of Deacon Converse.

For many purposes rubber cement is a necessity, and a substitute would be hard to find. But it has its disadvantages. One of these is its inflammability. This cement is particularly useful in the repairing of leather as well as rubber shoes. One day last month H. Marcus, a retail shoe dealer, was using some cement in patching a pair of shoes. He slipped on a parlor match, and pouf!—he was instantly surrounded with flames from the vapor from the cement. Altho he got out of the affair with slight injury, the store was destroyed with a loss of \$4,000, and had it not been for a brick parti-wall, a moving picture theatre would also have been a total loss.

The Knight Tire & Rubber Co., of Canton, Ohio, has opened a branch at 153 Massachusetts avenue, under the management of P. P. Parker, for the sale and distribution of Knight tires in New England. This branch is reported as being equipped up to the highest standard and as enjoying excellent trade.

Judge Dodge, in the United States District Court in this city, recently sustained the indictment against Warren B. Wheeler, Stillman Shaw and G. Alden Whitman, charging them with fraudulent use of the mails in connection with sales of stock of the North American Rubber Co., which were promoted through Wheeler & Shaw, Incorporated, Whitman acting as sales manager.

The Apsley Rubber Co., of Hudson, is about to place on the market a new line of rubber boots and heavy overs—mainly miners' and lumbermen's boots—under the brand of "Rock-Hill." The company claims for this new line new compound, new construction and new process, and that the result is a line of footwear of remarkable wear resistance. For months these boots have been undergoing severe tests, being worn under the most adverse conditions, in mines, tunnel construction, in creameries, cold storage warehouses, ice cream factories, garages and in places paved with concrete; and all tests seem to substantiate the claim of extra wear, and to prove that the result of the long series of experiments and research has been a type of distinctly superior rubber footwear.

Replete with information for rubber manufacturers—Mr Pearson's "Crude Rubber and Compounding Ingredients."

### THE RUBBER TRADE IN AKRON.

*By a Resident Correspondent.*

THE rubber industries in Akron are optimistic. The Miller, Firestone and Buckeye plants are running full force, and the other factories are taking on new men; but the reputation of the Akron factories for hiring all the labor they can get has invited to the city in search of employment a great number of people who, on account of the limited number required, have been disappointed.

A permit has been issued by the building department for the erection of another building by the Firestone Tire & Rubber Co. The new structure is to be 44 x 60 feet, of fireproof concrete and steel, and when completed will be equipped with apparatus for purifying and softening the water used by the company, before it goes into the boilers. It is to be situated near the railroad, in the rear of the present main buildings, and the cost is estimated at about \$5,000.

Literature recently distributed by the advertising department of this company describes the manufacture of pneumatic tires and inner tubes, as well as the solid rubber tire. A pneumatic tire casing is made up of fabric, beads, side walls, cushions, breaker strip and tread, and the importance of thorough inspection to see that each part is not only of itself perfect but that no flaws shall appear in the finished combination of the six parts, is dealt with in these instructive circulars. That inner tubes—which are subjected to great strain when inflated—should be of the highest quality of rubber and only the best of workmanship employed in their construction, and that proper tests be made to guard against leaks, air bubbles, imperfect joints, etc., is clearly explained, as well as the process by which these tubes are made. A later contribution goes into the details of the manufacture of the solid rubber tire, the gum as it comes from the calender being wrapped, layer on layer, directly on the rim on which it is to be used, the tire trimmed to the right shape when correct thickness has been reached, and then cured—after which the tread is cut by skilled workmen.

The sales force of this company is using especially attractive advance cards, the design of which is changed each month. The February number showed a portrait of Abraham Lincoln, combined with a calendar for the month, and a former issue showed a very clear and attractive photograph of the company's tire plant, with a smaller oval view of its rim factory.

The electric car which Chicago friends of Pope Pius have purchased for his use and are to present to him in March, will be equipped with Firestone tires.

Early in February 135 members of the Cleveland Engineering Co. visited the plant of the B. F. Goodrich Co. here, expressing at the termination of that visit appreciation of the courtesy extended by the company and of the extent and importance of the work being carried on.

This company has developed, after much study and experiment, a new tube, known as the Goodrich Indian Tube. This is said to be made of the cream of the finest rubber gathered by Indians native to the richest rubber country. It is brown in color, and the only recently placed on the market, has met with exceptional favor and heavy demand.

One of the main reasons for the centralizing of the rubber industry in and about Akron is that the plants are practically at the door of the coal fields of Pennsylvania, Ohio and West Virginia, and that the Ohio canal, fed by the Portage system of lakes and reservoirs, furnishes ample water supply.

The Northern Ohio Power Co., which is closely affiliated with the Northern Ohio Traction & Light Co., has constructed at the

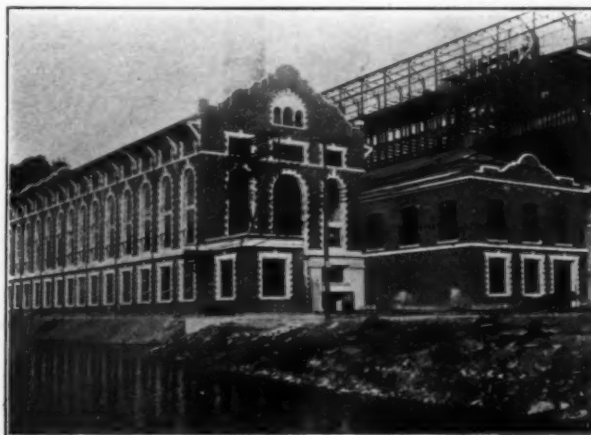
edge of Akron, along the Cuyahoga river, the largest hydro-electric plant between Niagara Falls and the Mississippi river—at a cost of over \$2,000,000. The drainage of the Cuyahoga river above this point covers a very large area. The dam at the breast is 66 feet high and somewhat over 120 yards wide. The sides are embedded in sandstone rock which forms the sides of



IRON CONDUIT BELOW CUYAHOGA DAM.

the gorge of the Cuyahoga river. There are continuous riffles and falls below this dam, and a large iron conduit below the breast of the dam gives an additional fall of over 40 feet, making a total head of water of 106 feet.

This supplies motive power at minimum cost, and the B. F. Goodrich Co. is using power from this plant for its factory. The Firestone Tire & Rubber Co. is at present being connected and expects to use this electric power, but it has taken con-



PLANT OF THE NORTHERN OHIO POWER CO.

siderable time to lay the underground conduit for carrying the electric wires, which are placed under 22 parallel railroad tracks at considerable depth. The Goodyear Tire & Rubber Co. and the Miller Rubber Co. are also installing high tension wires to use this power. Notwithstanding that some of the factories have already installed their own electric plants, the cost of this power is found to be much less than that generated at their own plants.

During the first week in February more than 1,000 additional workmen were employed by the Goodyear Tire & Rubber Co. at its Akron factory, increasing the force to 6,000 men and the automobile tire output to 1,000 per day. This company's factory is capable of housing 10,000 men and of

turning out a yearly product of \$50,000,000. Statisticians of the company figure that tires to the value of \$125,000,000 should be sold in the United States this year, to equip the 1,125,000 automobiles now in operation, and this third shift of workmen has been added so that the orders falling to the company's share may be properly cared for, the factory being in constant operation night and day.

The Goodyear company believes in newspaper advertising, and in order to induce Goodyear dealers to advertise in their home town papers a special department has been established in the Akron general offices for the purpose of calling attention to the advantages of this form of publicity, as well as to write advertisements, prepare copy, supply cuts, and in any way possible assist the dealers in their individual advertising campaigns.

The "Safety First" campaign inaugurated by this company in November last is said to have been the means of decreasing the number of accidents in its plant by more than one-half.

On account of the similarity of its name to that of another local concern, the Rubber Goods Supply & Manufacturing Co. of this city has changed its name to the Excell Rubber Co.

The name of the Buckeye Rubber Co. has been changed to the Kelly-Springfield Tire Co.

The Industrial Workers of the World have expelled from membership in their organization, and the Socialists from their party, four men employed in local rubber shops, accusing them of being spies in the employ of the Corporations' Auxiliary Co., of Cleveland. Three of the men so accused are said to have at once left the city, the remaining worker appearing at the trial held by the Socialist party and denying the charge.

An ordinance recommending that the sale of rubber connections for gas stoves and flueless heating gas stoves be prevented is recommended by building inspectors of this city. While an ordinance is in force to prevent their use, inspectors believe that it will not be prevented while sales of this article are permitted to be made.

A large number of the cars entered for the Vanderbilt Cup Races started on Saturday, February 21, at Santa Monica, California, were equipped with tires of Akron manufacture, which stood the stress and strain excellently. The Grand Prize was awarded February 23.

The Lyons Rubber Co. has overhauled its plant and installed new machinery for the manufacture of a complete line of rubber sundries.

The Independent Rubber Co., a sales organization composed of Akron men, is handling a large part of the output of the Lyons company.

#### FORD COMPANY NOT TO BUILD A TIRE PLANT AT AKRON.

A widely circulated and recently published report to the effect that the Ford Motor Co. of Detroit had bought 40 acres of land just outside of Akron and intended to erect thereon a large plant for the manufacture of tires was the cause of considerable excitement in Akron rubber circles, the report appearing quite credible in view of the quantity of tires required to equip the annual output of this company and the general understanding that the Ford company has been planning for years to manufacture its own tires. In a letter to THE INDIA RUBBER WORLD under date of February 21, however, the Ford Motor Co. makes this statement: "There is absolutely no foundation to the rumor that this company is about to erect a tire plant in Akron."

Should be on every rubber man's desk—Crude Rubber and Compounding Ingredients; Rubber Country of the Amazon; Rubber Trade Directory of the World.

#### THE RUBBER TRADE IN CHICAGO.

*By a Regular Correspondent.*

WITH the final arrival of cold weather, combined with plenty of rain, slush and snow, local dealers in rubber overshoes and raincoats have taken courage. Business in these departments of the rubber trade has shown a marked improvement since the beginning of the favorable weather. While the manufacturers and jobbers have noticed but little increase in business, dealers state that the people are buying well for the first time this year, and most all lines in the rubber business report larger sales for February than during the same month of last year. Goods are moving well and will probably continue to do so for some time, principally in size up and filling in lots to complete stocks in the hands of retailers.

W. E. Carver, manager of the Rubber Manufacturing & Distributing Co., 207 West Monroe street, said: "The humid weather has arrived just in time to save some of us fellows from getting disgusted with the rubber business. Never in the history of the trade in this section have we had more unfavorable weather than this year. The dealers are for the most part overstocked at the present time, but if this weather continues orders will be arriving in a satisfactory manner within a few weeks at the longest. However, none of the larger houses have been seriously alarmed, for we have come to know that in Chicago we always have a certain amount of weather each year during which the sale of our goods is assured. The people know, also, that they must have raincoats and rubber overshoes in a climate like this, and for that reason are seldom found without these articles in their wardrobe. The trouble is that they will not buy when the weather is cloudless, but show that they are human by waiting until the storm season comes, when they buy in droves. For that reason we have periods here when we are over our ears in the work of handling orders and then other seasons when we have nothing to do until tomorrow."

One of the features of the Automobile Show in Chicago, which recently passed into history, was the growing popularity and increasing variety of rough treads, as manifested in the tire displays. Many new patterns of anti-skid shoes have been put upon the market and accepted with favor by the public, which is plainly becoming more cautious in guarding against skidding, both by choosing rough tread tires and by the use of tire chains. One of the most interesting innovations which was seen at the Chicago show was the detachable or separate tread, which is so arranged that when it is put on the body of the tire and the tube inflated it practically forms one piece with the body. It is claimed for this device that it cuts the tire cost about in half, because the separate tread can be removed at any time, and as the tread is the part which receives most of the wear and tear, the body of the tire does not have to be renewed. In the ordinary tire, of course, when the tread is worn out or badly injured the entire shoe must be thrown away. One other novelty which attracted the crowds at the show was a combination pneumatic and cushion tire, in which the tread is much thicker than that ordinarily used and is cut and patterned so that it presents a sharp edge in any direction. It is said that this form combines the riding qualities of the pneumatic with the many advantages of the cushion tire.

The Knight Tire & Rubber Co., of Canton, Ohio, has opened a distributing branch here, at 2112 South Michigan avenue, to take care of its trade in the Middle West. This branch will be managed by E. C. Merkle, who was formerly



connected with the Excelsior General Supply Co., of this city, and who put Knight tires on the market in Chicago for this concern.

\* \* \*

At the annual meeting of the stockholders and directors of W. H. Salisbury & Co., 107 South Wabash avenue, which was held February 3, all of last year's officers were re-elected. They are: President, C. R. Blanchard; vice-president and treasurer, M. F. Salisbury; secretary, Richard H. Geier. The usual 6 per cent. dividend was declared. Last year was a satisfactory one, according to the secretary's report.

\* \* \*

One of the schools of automobile instruction recently conducted a class of twenty-six men through the repair department of the Goodrich company's Chicago branch to witness practical demonstrations in tire repairs. These demonstrations took in every operation in the repair of a tire shoe, from cutting away of the old rubber and worn out fabric to the application of the new material and the final cure in the vulcanizer, and were supplemented by a talk by the head of the department on tire abuses, after which questions were asked and answered and a set of illustrated pamphlets on the care of tires, issued by the Goodrich company, was presented to each member of the class.

\* \* \*

The subject of the Lincoln Highway is one especially interesting to the tire trade, as the carrying out of the project for a system of good roads across the entire continent could not fail to tempt the automobilist to greater use of his car and consequently more extended use of tires. At present the Chicago newspapers are besieged with questions concerning this highway and if questions may be used as a measure of interest, the highway without a doubt will prove the most popular of all tourist roads. Many tourists coming from the west have been heard to remark, "Yes, I enjoyed my trip through the several states, but from Iowa to Chicago I was more than pleased with the markings on the telegraph poles, placed there by the order of the officers of the Trans-continental Highway Association. Not once did I find it necessary to look at my route book or inquire my way. A complete trans-continental system thus marked would be ideal."

The dream of such an ideal system is about to be realized in the Lincoln Highway. By the time the auto season opens the entire route, from coast to coast, will be marked with the association's letter L, between bands of blue and red—generally on telephone or telegraph poles.

There has been much curiosity manifested concerning the identity of the originator of this scheme. Carl G. Fisher, of Indianapolis, head of the motor speedway, was the originator of the Lincoln Highway project, and the Lincoln Highway Association was later formed and now has offices in Detroit.

The Highway Commissioners' Good Roads Association of Cook County (in which Chicago is situated), the organization which grew out of the convention called last December by the country members of Cook County Board, played its first part in the development of the good roads movement in the county February 13, when it entertained at a banquet the delegates to the National Conference on Concrete Road Building. This national conference was held in Chicago February 14-17, the first day being given to the Cook County organization with a view to increasing local interest in the subject of hard roads.

The following is a brief outline of the present county road system and the plan proposed for its development: There are 1,300 miles of country roads in Cook county, 325 miles being old state roads extending in all directions from Chicago. The commission claims that these 325 miles constitute a sufficient road system, 90 per cent. of the rural population

being located either directly on one of these roads or within one mile of the system. A road having a harder surface, of either brick or concrete, is advocated, the ordinary macadam or gravel road having proved unable to stand up under the automobile traffic of today, and heavy travel, including large motor trucks, is bound to increase. The width of the road advocated is from 18 to 24 feet, and the estimated cost is from \$12,000 to \$18,000 per mile, the total 325 miles approximating \$4,000,000.

The program advanced by the association proposes the study of scientific building and maintenance of roads, the efficient and economic expenditure of all funds devoted to the construction, repair and maintenance of country roads, and the establishment of a fixed plan of building a system of permanent roads throughout the country towns of the county.

## THE RUBBER TRADE IN RHODE ISLAND.

*By a Resident Correspondent.*

THE rubber business throughout the state is showing a general improvement and all of the plants are receiving more orders than a month ago. The reports all show that the outlook is much improved. The factories, as a rule, are working full time, and some are operating certain departments on overtime schedules.

The manufacturers of automobile tires report orders that will soon have their factories working up to the mark which was set in the summer and fall of last year.

The reduction in prices of footwear by the United States Rubber Co. together with the advent of snow, ice and bad weather conditions during the past month had a stimulating effect upon this line of trade.

\* \* \*

Plans for the erection of a new dairy barn to cost \$50,000 on the farm of Col. Samuel P. Colt, president of the United States Rubber Co. on Papoosequaw Point at Bristol, have been completed and work on the structure will be commenced as soon as the spring opens. It will be finished on the interior in white enamel brick, four feet from the concrete floor, and above that the walls will be of plaster. It will contain sixty stalls for milch cows with additional boxes for young stock and bulls.

\* \* \*

Clarence H. Broley, George Kirk, Elizabeth E. Broley and Mark Kirk are the incorporators of the Cataract Tire & Garage Co., a concern which is authorized to carry on a general automobile business in Providence with a capital stock of \$20,000.

\* \* \*

The plan of working a five-day-a-week and four-day-a-week schedule alternately has been abandoned by the Alice Mill of the Woonsocket Rubber Co., and instead a five-day week is now being followed. It is reported, however, that prospects look more satisfactory and that full time may be resumed at an early date.

\* \* \*

The Goodby-Rankin Co. was incorporated under the laws of Rhode Island early in February with a capital stock of \$40,000 to deal in automobile supplies and automobiles. The incorporators are Albert E. Goodby, who started in the bicycle business in Providence in 1893 and who has auto. supplies stores on Washington street and Prairie avenue; William G. Rankin, for the past 12 years in charge of the automobile supplies department of the Belcher & Loomis Hardware Co., and Thomas P. Himes, of Cranston.

\* \* \*

The Cataract Rubber Co. has removed its salesrooms from 200 Washington street to more commodious quarters at 69 Broad street, Providence.

The salesrooms of the Decker Rubber Co. have been removed

from 105 Weybosset street to a larger store at 76 Weybosset street, Providence.

Walter Herman, who has been superintendent of the Revere Rubber Co. for several years past, has severed his connection with that concern and is taking a much needed rest from business activities.

### THE RUBBER TRADE IN TRENTON.

*By Our Regular Correspondent.*

THE Burman & Gedney rubber factory on Enterprise avenue was damaged by fire on February 13 to the extent of \$7,000, the second and third stories of the building being completely destroyed. The fire—which is of unknown origin, but is supposed to have been the work of an incendiary—started in the rear of the second floor, being discovered by the night watchman, who lives in an apartment adjoining the factory. The severity of the weather hampered the work of the firemen, four companies of whom responded to the alarm. Rubber specialties were manufactured at this plant, and plans were under consideration by the company for extension.

A fire also occurred recently in the plant of L. Albert & Sons, scrap rubber dealers located at North Olden avenue and the Pennsylvania railroad. Besides the damage done to the building—which was considerable—the loss entailed by the destruction of scrap rubber amounted to upwards of \$15,000. This building was at one time occupied by the Ajax-Grieb Rubber Co. of this city.

The Globe Tire & Rubber Co. has closed arrangements whereby it will be represented in the eastern territory by the Meeley Rubber Co., with headquarters at 660 North Broad street, Philadelphia. The Globe tire is a comparatively new product, but it represents the result of the experience and experiments of men long identified with the production of tires, and it is said by experts to possess unusual merit.

The old Buckthorn wire mill of the John A. Roebling's Sons Co., formerly located at the foot of Wolvorton avenue, this city, has been removed to the wire plant of the company at Roebling. The working force at this plant numbers about 100.

Wm. R. Thropp & Sons Co., manufacturers of rubber mill and other machinery, are erecting a new factory building on New York avenue, Trenton, for the pulverizing of flint and spar for the use of potters and tile manufacturers. The company will manufacture all of the machinery required for this new plant, much of which will be of special design. The plot on which the factory will be situated is 500 feet in length, with an average depth of 200 feet, and switches from the Philadelphia & Reading and Pennsylvania railroads lead directly to the plant. Thomas H. Thropp, formerly president and general manager of the Wm. R. Thropp & Sons Co., was one of the founders of the Eureka Flint & Spar Co., of Trenton, and is considered an expert in the flint and spar business.

Jos. Allibone, employed for 26 years in the machine shop of the Thropp company, died on February 6, following a stroke of apoplexy, at the age of 78 years.

A large iron sign has been placed at State and Calhoun streets for the direction of motorists from Pennsylvania to the Lincoln Highway through Trenton. While the Mercer County Automobile Club is directly responsible for the erection of this sign, several of the Traction companies—which have found similar signs in other parts of the city a great aid to motorists—have lent their aid to the project, the New Jersey & Pennsylvania Traction Co. doing the wiring and

providing the power for electric illumination at night, and the Trenton & Mercer County Traction Co. granting the use of one of its poles for the background of the sign.

The Spartan Rubber Co., of this city, has opened a branch at 715 Boylston street, Boston, Massachusetts, of which F. C. Stetson has been appointed manager.

The Manhattan Rubber Manufacturing Co., of Passaic, has joined the Association of Corporation Schools and has enlarged one of its smaller buildings, arranging it for use as an auditorium, where instruction is given twice a week to apprentices, office boys and girls, and even to adults, who wish to acquire a better knowledge of the rubber industry. This instruction includes lectures, which are illustrated by the use of lantern slides showing all the various operations in connection with the cultivation, collection, preparation and manufacture of rubber into mechanical goods as produced by this company.

### RUBBER NOTES FROM CALIFORNIA.

THE B. F. Wade Tire & Rubber Co., located at 512 West 8th street, Los Angeles, announces having made arrangements for exclusive representation of the Dayton Airless tire in this territory. This tire, which is of the cellular type of construction and is made by the Dayton Rubber Manufacturing Co., of Dayton, Ohio, has been on the eastern market for three years, where it is now well established. The Wade company, as mentioned last month, also represents the Tyer Rubber Co., of Andover, Massachusetts, in southern California, and large shipments of both brands of tires have recently been received at the company's sales rooms.

The installation of machinery now being made at the plant of the Hendrie Rubber Co. at Torrance will enable this company to double its output and will necessitate additions to the working force. A new drying room is also being added, which will greatly facilitate production. The cost of this addition, with the new vulcanizers and tire making machines, is estimated at close to \$50,000.

A plan is now under way for the erection by eastern capitalists of an automobile factory at Torrance for the manufacture of a strictly southern California car, and the Hendrie Rubber Co. expects to secure a contract for the tire and rubber equipment for these cars, this expectation being largely responsible for the extensions and additions being made.

Users of Hendrie tires are being provided with passes which will enable them to visit the factory and see just how the tire is built, as well as the quality of the articles entering into its construction, at the same time receiving advice on the proper care and use of tires so that trouble can be eliminated and efficiency increased.

Plans are being considered for the erection of a factory at San Jacinto in which are to be assembled eastern made parts of the new Crosson spring wheel. It is said that some of the large tire concerns have made bids for the patent on this wheel, and that its introduction is sure to revolutionize the tire business. W. H. Sanders is one of the promoters of the new enterprise.

The popularity of the toy balloon as a means of entertaining the juvenile members of a household has led to the adoption of this article by certain dealers in children's footwear as a souvenir to be given to each purchaser of a pair of shoes. Each rubber balloon is imprinted with the name and address of the firm presenting it, the manager of which expresses his belief in the effectiveness of this form of advertising, when judiciously handled.

## HOMES FOR FACTORY WORKERS.

SO keen is the industrial competition in this country at the present time that any detail that will increase the extent or the quality of production is considered of prime importance, and not the least important of these details is the



GOODYEAR COMMUNITY HOME.

efficiency of the workers. Employers of labor, appreciating this fact, are giving more and more attention to the conditions surrounding their employes, and, believing that the necessary investment of capital required to improve home conditions will yield profitable dividends in increased efficiency and interest on the part of the workers, several large industrial enterprises have of late been interesting themselves in the erection of houses for occupancy by their factory workers. On page 129 of our December issue mention was made of the work in this direction being carried on by the Goodyear Tire & Rubber Co., at Akron, Ohio; and the



ANOTHER STYLE OF GOODYEAR HOME.

above illustrations are representative of the one hundred houses already completed in the "Goodyear Home Community," and which may be purchased from the company by its employes at actual cost, on the basis of monthly rental.

The following street view pictures some of the dwellings recently erected by the John A. Roebling's Sons Co., manufacturers of rubber-covered and other wires, etc., in the village of Roebling, New Jersey, where a tract of 237 acres in the vicinity of the company's new rolling mills has been purchased and is being transformed into a city of homes, with parks and all the up-to-date city comforts. These are six-room double brick houses, with bath and shed extension, finished attic, steam heat and gas, and are designed for occupancy by the company's machinists and other workers at a rent of \$13 a month for each side. Other houses of superior construction, nine-room double brick, with bath room, laundry in cellar, steam heat and electric lights, are also provided,

at a rental of \$22 a month. The company is frank in disclaiming any altruistic motive in the erection of these dwellings, the location of this particular site for the extension of its plant making it seem advisable to provide proper nearby homes for its workers at a rent which will yield a fair interest on the investment in houses and their surroundings; while the company's store and other of the village improvements, tho not conducted for the purpose of making a profit, will



DWELLINGS ERECTED BY ROEBLING'S SONS CO.

be run on the same business principles which characterize the entire enterprise and which enable the occupants of the dwellings to feel that spirit of independence without which the project could not in their interest be considered a success.

## THE ADVANTAGE OF NET PRICES THAT ARE NET.

The rubber department of the Hamilton Brown Shoe Co. is a strong believer in net price lists that really give net prices, as distinguished from net price lists from which various discounts are to be taken before the real, final absolute net is arrived at. A circular sent out by this company to the retail trade contains the following paragraphs on this subject:

"For years it seems to have been the policy of the majority of wholesale firms offering rubber footwear for sale, to put out price lists subject to various discounts, and thus to confuse the minds of the retailers until the majority really never know just when they have secured the right prices on their purchases.

"In rubber footwear there are five grades of quality: Two First Grades—a Standard First, and a Differential First, which is five per cent. cheaper in price than the Standard; two Second Grades—a Standard Second Grade, and a Differential Second Grade, which is five per cent. cheaper in price than the Standard; then a Third Grade.

"Many firms get out price lists showing Standard Grades at prices that are marked up five per cent. and then they offer the merchants a five per cent. trade discount. This discount sounds good to the buyers and many of them buy without thinking to examine the prices shown on the list, which prices are five per cent. higher than the regular net prices shown by firms following the no-discount policy. Then, other firms carry the Differential lines which are five per cent. cheaper in both quality and price than the Standard grades, and so they put out their price lists with prices marked up five and five per cent. and then offer these two fives as discounts to the merchants. These discounts (five and five per cent.) sound still better, but are they? Most emphatically they are not. They are merely the taking-off of that which has previously been put on!

"Make every salesman who tries to sell you rubber goods name his lowest, net cash, no-discount prices, payable December 1, for then, and then only, can you know just exactly what you are paying."



## NEW TRADE PUBLICATIONS.

## ELBERT HUBBARD PHILOSOPHIZES ON THE REPUBLIC CLUB HOUSE.

WHEN Elbert Hubbard finds a subject that necessitates the introduction of sonnets, and compels him to draw deep draughts from his intimate knowledge of Plato, Aristotle, Emerson and Herbert Spencer, he evidently has struck quite a theme. But all these things he does in a little book entitled "Opportunity—Being a Little Journey to the Republic Clubhouse," in which he describes, with that descriptive ability that belongs peculiarly to him, the new clubhouse recently opened in Youngstown, Ohio, by the Republic Rubber Co. It is hardly necessary to make any extended reference in these columns to this clubhouse, as it was illustrated in the February number of THE INDIA RUBBER WORLD, and has been described in earlier issues, but Mr. Hubbard has written a very interesting little story about this new phase of industrial development. Anybody who would like to see how a literary man treats a commercial topic ought to write for a copy of "Opportunity."

## THE DIAMOND BRAND OF RUBBERS.

The Diamond Rubber Co., of Akron, Ohio, has hitherto been chiefly associated in the public mind with the manufacture of tires and mechanical goods, but a 48-page catalog recently issued by that company entitled "Diamond Brand Footwear" shows that the company is making rubber boots and shoes on a very comprehensive scale. This catalog shows certain lines that are not to be duplicated elsewhere, as, for instance, the "White Diamond Line," including boots, lumbermen's and combinations, made in pure white color. Another innovation is a line of boots and lumbermen's in dark brown. This is called the "Tobasco" line. The catalog is well illustrated and contains a full description of the Diamond footwear line.

## "EXTRA SERVICE."

This bright and breezy monthly publication (in its fourth number) is avowedly published in the interest of every Federal Rubber Manufacturing Co. employé. An interesting summary of "Plantation Rubbers of Today," from the pen of Mr. K. J. Thompson, effectively opens the number, containing much information of interest to rubber mill employés on the cultivation and preparation of plantation rubber. Among other articles is a discussion of the labor situation in Akron, in comparison with which the Federal company is faring extremely well, its schedule steadily increasing each week.

The personal element is strong in this interesting publication, which is replete with local references, some of an obviously satirical nature.

## GOODYEAR MECHANICAL RUBBER GOODS.

That uniform reliability characterizes the mechanical rubber goods of the Goodyear Tire & Rubber Co., of Akron, is the keynote of the attractive catalog lately issued by that department, classified into belting, hose, packing, tiling, matting, etc. The first section gives full descriptions of the eight standard brands of rubber belting, while the exceptional merits of Goodyear balata belting are explained in detail, followed by particulars as to oil well and conveyor belting. Next in order come the price list of "Kant Kink" hose, and a general price list of hose, followed by special lists of acid, water and suction hose, and details of the application of various other descriptions. Special prominence is given to garden hose.

The completeness of the line of Goodyear hose is emphasized by the fact of its occupying about 40 pages, or nearly half the catalog; while a third section deals with the well known Goodyear packing.

In view of the interest now being taken in rubber floorings, the details of interlocking rubber tiling, which, it is claimed, outlasts marble, will be appreciated. The descriptions of Goodyear perforated mats will also be found useful.

Among the attractions of the catalog is the number of artistic illustrations by which the text is supplemented, including a two-page cut showing the entire plant.

## THE GOULD COMMERCIAL CO. ANNUAL STATISTICS.

With its accustomed regularity, the valuable annual statistical circular of the above company for 1913 has appeared. The tables show the world's total imports as 101,160 tons, against 97,950 for the preceding year, while deliveries to consumption represented 100,535 tons, as compared with 95,204 in 1912. Deliveries included: Paras, 40,216 tons, against 43,052; Plantation, 45,216, against 27,070, and Miscellaneous, 15,103 tons, against 25,082.

From the above figures it will be seen that the falling off in miscellaneous descriptions (chiefly wild rubber) was more than offset by the large increase in plantation rubber. As to wild rubber it is remarked that Anglo-Saxon mercantile sagacity had been displayed in starting rubber plantations. Brazil and other wild sections would never have been able to cope with the sudden great demand for rubber tires. The opinion is expressed that the shipments of wild rubber will probably not cease altogether, but will be largely succeeded by plantation rubber from the same sections.

According to the tables there was an increase of consumption of about 5 per cent. between 1912 and 1913; a 10 per cent. further increase in quantity being regarded as a liberal estimate for 1914.

Heavy reductions in the cost of plantation rubber are anticipated, until prices in the East and in other sections harmonize. It is estimated that a saving of 50 per cent. can be effected in the production of rubber in sections at present wild. The usual chart of movements of prices serves to enhance the value of the tables.

## THE WORLD'S RUBBER POSITION.

In a useful little hand book entitled "The World's Rubber Position," published monthly by W. H. Rickinson & Son, of London, there are gathered a number of interesting statistical tables, as nearly up to date as possible, showing the movements of rubber at various important centers of the world's trade. Another feature of interest is the table with the imports and exports of the leading European countries. The work has evidently been compiled with much care, and reflects credit on its authors.

## CALENDARS AND SOUVENIRS.

## THE FIRESTONE COMPANY ISSUES A FINE CALENDAR.

THE Firestone Tire & Rubber Co., Akron, has sent out a handsome calendar, which differs from the ordinary offering of that sort in that it begins with February, 1914, and ends with February, 1915. That is one difference. Another lies in the artistic character of this calendar. It consists of four different leaves, each leaf being ornamented with a colored panel about 10 inches square. These panels were all painted by Mr. E. W. Pirson, an artist of repute. The first panel shows a comely young woman clad in an ermine coat leaving an electric car, with a city background suited to the subject. The second panel is distinctively spring-like. A touring car has stopped under a tree—presumably an apple tree—while the occupants are busy helping themselves to the blossoms—a very pretty suburban scene. The third panel shows a pair of high-stepping bays drawing a trim drag, with a millionaire's country palace in the immediate background; while the fourth panel has caught a heavy-laden truck in the act of making a steep ascent to the roadway from the dock. These four panels show four different tires, viz., the cushion electric, the pneumatic, the carriage and the truck. It is altogether an artistic piece of work.

The Katzenbach & Bullock Co., dealers in chemicals and colors, with offices in New York and works in Trenton, New Jersey, have favored some of their friends with a solid brass letter-opener bearing their trade mark and name enameled in black and red.

## New Rubber Goods in the Market.

### A WATERPROOF COAT FOR THE HORSEMAN.

**A**N English manufacturer of high grade rubber garments has designed a waterproof coat which is described by one keen horseman as "the only waterproof I know of which will really keep a man dry in the saddle throughout a heavy and continuous downpour." This coat, which on ordinary occasions has the appearance of a raincoat of customary design, is provided with an apron buttoning on one side, as shown in the illustration, which will completely protect a rider from waist to mid-calf. When not in use this apron is fastened out of sight on the inside of the coat. [J. C. Cording & Co., 19 Piccadilly, London, W., England.]



THE "EQUITOR" RIDING COAT.

### SOFT RUBBER WEEDLESS BAIT.

Every fisherman appreciates the advantages of a hook that can be artfully and temptingly cast into and drawn through weeds and snaggy places where the "big ones" conceal themselves. The inadequacy of the ordinary fishhook in this respect, and its tendency to collect weeds, etc., is ascribed as the reason why the average catch contains so large a proportion of the small fry. This excuse, however, will no longer be accepted, for it is now possible to secure a "Weedless Fish Nipple," as illustrated herewith—made of soft rubber, which protects the hooks in the direction in which the line is being drawn and yet when struck will collapse and allow them to penetrate so that the fish cannot free itself. This bait is made in correct casting weight, is steered by the balanced weight and can be let down to any desired depth—regulated by reeling or trolling—for deep water fishing. It is made in white and in red. [The Moonlight Bait Co., Paw Paw, Michigan.]



### RUBBER FASTENERS FOR AVIATORS.

Aviation is decidedly a hazardous calling. It not only has its ups and downs but its multitudinous jars and jolts. To minimize the latter as far as possible, somebody has invented a belt to fasten the airman to the seat. It has a wide piece of leather in front and fastenings at the side, from which strong, elastic rubber cords extend to the back of the seat. If the craft strikes the earth with too much of a shock, the airman, instead of being thrown from his seat, is thrown forward and then pulled back again by the rubber cords.

### A NEW TIRE REPAIR PATCH.

An invention which will save motorists a great deal of time and annoyance has just been placed on the market. The device is shown in an accompanying illustration and consists of a new form of cementless tube patch. Formerly many patches were often ruined in the effort to remove the muslin protector with which the patches are lined. There was no way by which the fabric could be gripped and taken off. The fabric protector of this new patch, however, is provided with a projection which extends beyond the circumference of the rubber. With a simple pull the muslin can be removed and the patch is ready for use. [The Firestone Tire & Rubber Co., Akron, Ohio.]



### A RUBBER SPOUT FOR THE TEA OR COFFEE POT.

A method has been devised—and in every well-regulated household the means should soon be at hand—for relieving the distress of the domestic genius who sees the spout of her favorite tea or coffee pot either broken off or hopelessly chipped. A rubber nozzle, as shown in the accompanying illustrations, has appeared



ALL RUBBER SPOUT.

RUBBER AND PORCELAIN.

on the market for the relief of such situations. It is made of a high quality of rubber, which imparts neither flavor nor odor to the tea; and it may be had in two sizes—the smaller being of rubber alone, for use on a chipped-lip spout; the larger, consisting of a rubber tube with porcelain lip, for the repair of a broken spout. The trade name of this nozzle, "Mandarin," has been duly registered.

### PROTECTING THE DISHES FROM THE FAUCET.

A Philadelphia housewife with an eye to preserving her dishes from destruction has devised a simple bumper to put about the faucet so that dishes coming in contact with it in the sink will be uninjured. She took a heel from an old rubber boot, cut a hole of the proper size in it with a chisel and a hammer, and pushed it up around the end of the faucet; and now the hired girl can throw the china against it with perfect impunity. If there didn't happen to be a pair of old rubber boots in the house the same purpose could be fairly well effected by taking an old rubber shoe or any other piece of rubber, cutting out a strip of sufficient length and winding that around the end of the faucet.

### RUBBER ICE BAG WITH TEXTILE LINING.

A new form of ice bag has an internal textile lining which is imbedded in the sheet of rubber, without the use of adhesive substances, in such a manner that the meshes of the tissue are filled with rubber, while the design appears on the outside. In this way a perfectly homogeneous material results from the union of the rubber and the fabric, so that the advantages of a rubber ice bag are combined with those of one composed of fabric. [Gummiwarenfabrik, M. Steinberg, Köln-Lindenthal, Germany.]

## The Obituary Record.

DR. JACQUES HUBER.

WORD has been received by cable of the death at Pará on February 18 of Dr. Jacques Huber, Director of the Goeldi Museum and Botanical Garden of that city. No details are given beyond the bare announcement of this most regrettable event, which will mean such a loss to the rubber-growing world of South America.

Dr. Huber was a fine representative of the German element



DR. JACQUES HUBER.

which for many years has been so dominant in Brazil and has contributed so many leaders in the development of the great South American republic—another representative being Dr. Lauro Müller, who was sent to the United States last June on a special embassy by his country.

Dr. Huber was for many years the director of the famous botanical museum in Pará, and he was considered not only the foremost authority on the scientific aspects of rubber growing in the Amazon valley but was perhaps more active than any other official in the attempt to reduce the wild chaos of Amazon rubber production to some semblance of order and organization so that it could meet the constantly growing rivalry of the Far East.

In the issue of THE INDIA RUBBER WORLD of January, 1898—over 16 years ago—there appeared a translation of a lecture which Dr. Huber had just delivered in the Pará museum; and from that time to the present his name has appeared very frequently in these columns and many references have been made to the work of South American rubber development in which he was so diligently engaged. He will be remembered by many Americans because of the extremely able and interesting paper which he read at the Rubber Conference in New York in September, 1912, on "The Present and Future of the Native *Hevea* Rubber Industry in Brazil." It was a comprehensive address and gave his hearers a better idea than they had ever had before of the problem that the rubber interests of Brazil were called upon to solve. He was also one of the principal speakers at the banquet held at the conclusion of the Rubber Exposition that took place jointly with the conference.

In the spring of 1912, as a member of what was known as the Akers Commission, he made an extended visit to the eastern plantations and was received everywhere with distinguished

courtesy. On his return to Pará he published a book giving probably the best comparative survey of the rubber situation in the Amazon and in the East that had ever been attempted. His position was such an eminent one in the world of Amazon rubber production that his loss to that interest appears irreplaceable.

Personally, he was a delightful man, most modest and unassuming, notwithstanding his acknowledged scholarship and scientific attainments. He had many friends in the United States and in Europe and in the Far and Middle East. In fact, his acquaintance extended to every continent, wherever men are interested in any phase of rubber—and his death will be widely lamented.

GEORGE P. WHITMORE.

George P. Whitmore, for many years one of the prominent figures in the New England rubber trade, died at his residence in West Newton, Massachusetts, on February 22, after an illness of nearly a year. He was born in Boston, November 21, 1849, and after graduating from the public schools went into business at an early age. He was associated with the Boston Belting Co. for 30 years, for the greater part of that time being the secretary of the company. About five years ago he left this position to become identified with the Revere Rubber Co., of Chelsea, Massachusetts.

He was one of the active organizers of the New England Rubber Club in 1900 and was its first treasurer, an onerous position which he held most acceptably for a number of years. He was also very active and prominent in Masonic circles, having been District Deputy, Grand Master and Past Master of Dalhousie Lodge, and was for many years president of the Masonic Hall Association of Boston. He was married in 1877 to Miss Alice Eaton, of Hamilton, Ontario, who, with a daughter and two sons, survives him.

A testimonial which was presented to him by his fellow club



GEORGE P. WHITMORE.

members when he resigned the position of treasurer in the rubber club so fittingly expresses the esteem in which he was held, not only in this club but in the trade generally, that it may with propriety be quoted here: "By his genial presence, sane counsel, modest manner and self-sacrificing attention to detail, he has won the respect and love of all."



## CLINTON VAN VLIET.

Clinton Van Vliet, president of Goodyear's India Rubber Selling Co., died in Flushing Hospital, Flushing, Long Island, on February 6, under circumstances that were not only exceptionally distressing, but so unusual as to attract wide attention.

Early in January he was attacked with what he believed to be indigestion. His doctor diagnosed it, however, as appendicitis. Mr. Van Vliet assured him that this was impossible, as some three and a half years ago, being attacked by appendicitis, he had undergone an operation at the hands of two famous New York surgeons and on his recovery had paid them a large amount for removing his appendix. His friends will remember the long siege that he passed through at that time—after he had



CLINTON VAN VLIET.

been under the surgeon's knife—which kept him away from his business duties for many months. His doctor, however, was insistent that his diagnosis was correct; accordingly on January 18 an operation was performed and the appendix removed. But at Mr. Van Vliet's age—69 years—he was not able to rally from the shock, and some days later it was noticed that gangrene had set in in one of his legs, owing to congestion of the blood. On February 2 a second operation—amputating his left leg—was performed. He survived this but a few days, passing away on February 6.

In the death of Mr. Van Vliet, the rubber industry has lost one of its ablest men and most successful members. Below is a brief resumé of his life, as given by one of his business associates for nearly forty-four years:

Mr. Van Vliet was born in Plainfield, New Jersey, on August 20, 1844, and was imbued with that good old Holland blood which has given to the world a host of sturdy men and women. He was educated in the public schools of his native town, from which he graduated with high honors. His first entry into business life was with a flour commission firm in New York City, but seeing a better chance to advance himself, he became cashier and office manager of an old-established carriage and wagon firm, with which he remained several years. In the fall of 1870, he entered the service, as office manager, of Goodyear's India Rubber Glove Mfg. Co., whose offices and stores were then situated at Nos. 205 Broadway and 164 to 166 Fulton street, New York City. His ability was early recognized, and upon the death of the treasurer he was made acting treasurer and general manager, the firm in the meantime having removed to Nos. 503

and 505 Broadway. A little later he was elected treasurer and general manager, and when the business of the firm was merged into the United States Rubber Co., he was retained in those positions and still held them at the time of his death. He also was elected president and treasurer of the Goodyear's India Rubber Selling Co., one of the subsidiary branches of the United States Rubber Co.

Mr. Van Vliet's characteristics were, a strict adherence to the routine of business life, an unflagging energy in the advancement of the interests of his company, and a remarkable intuitive way of solving quickly many of the perplexities incident to business affairs. His decisions were final, because they invariably were proven correct and for the best interests of all concerned.

While a keen man of business, he was withal a man who substantially helped many who were less fortunate in their daily life, even tho knowing that his efforts would meet with no reward except in the feeling that he was doing good. A quiet man, avoiding all that was spectacular, not given to self-assertiveness, tho of exceptional ability; loyal, helpful, universally respected, and by those whose lives touched his most closely much beloved.

## HENRY G. COOKE.

The extreme winter weather that swept down on New York so suddenly in the second week of February brought many casualties and not a few fatalities in its wake—among them the death of Henry G. Cooke, for the past 19 years manager of the stock transfer department of the United States Rubber Co., who fell on an icy sidewalk on February 14, sustaining a fracture of the skull, from which he died on the 18th.

Mr. Cooke was 58 years of age and had spent practically his whole life in New York City, residing during his last few years at 2469 Broadway. His earlier business career was associated with Phelps Bro. & Co., steamship agents. In 1895 he left his position with that concern to join the United States Rubber Co., where he was soon put in charge of the stock transfers, holding that position to the time of his death. His association with these two companies covered his entire business career of nearly 40 years. He was a veteran of the Twenty-third Regiment of New York and was quite prominently identified with the Masons. His position in the United States Rubber Co. brought him in contact with the representatives of the financial interests and he had a wide acquaintance throughout the Wall street district. Among his associates in the rubber company he was held in the highest esteem.

## MRS. F. M. SHEPARD.

Mrs. Frederick M. Shepard died at her home in East Orange, New Jersey, on February 18, in her eighty-second year, from a complication of diseases. She had, in fact, never recovered from the shock occasioned by the death of her husband last June. Mr. Shepard, as is known by everyone familiar with the rubber trade, was very prominent in that industry for over 60 years, having been president of the Goodyear Rubber Co. during the greater part of his life, and president of the United States Rubber Co. for a period of five years.

Mrs. Shepard is survived by five children, viz.—Frederick M. Shepard, Junior, John A. Shepard, Miss Annie R. Shepard, Miss Edith M. Shepard and Mrs. Alfred Boote—all of East Orange.

## REQUESTS IN MR. LEWIS' WILL.

The late George A. Lewis, president of the Beacon Falls Rubber Shoe Co., left the larger part of his estate to his family, but his will contained a certain number of specific bequests, as follows: \$10,000 to the First Congregational Church of Naugatuck, Connecticut; \$5,000 to the Grove Cemetery Association of that city; \$1,000 each to his coachman, his gardener and a woman servant who had officiated in his home for a number of years, and a bequest of \$500 to his chauffeur.

## News of the American Rubber Trade.

### THE "TRED-LITE" HEEL WILL BE KNOWN AS THE ESSEX.

THE Essex Rubber Co., of Trenton, New Jersey, has been manufacturing for some time a rubber heel known as the "Tred-Lite." This heel has been very successful and has reached a large sale, but the company has concluded—wisely, it would appear to the average man—to subordinate the word "Tred-Lite" and lay chief emphasis on the name "Essex" and the trade-mark "S X," which appear on the greater part of the goods sent out by this company, and which are consequently widely known in the trade. So the "Tred-Lite" will hereafter be known simply as the Essex heel. Incidentally, the company calls attention to the new non-skid feature of the improved heel and believes that a pair of these heels will outwear two pairs of the ordinary kind, tho selling at no higher price.

### THE ASKAM RUBBER CO.

The Askam Rubber Co., located at Milford, Connecticut, is a new reclaiming company with a mill operated by William H. Askam, widely known as an expert on rubber reclaiming and matters pertaining thereto.

The new company, which will confine its operations to the reclaiming of tire stocks, commences under particularly happy auspices, so far as the plant and its equipment are concerned, as Mr. Askam personally superintended the construction, arrangement and instalment of machinery; the natural result of which is a very complete and thoroughly modern reclaiming factory.

It is eligibly located on 5 acres of land belonging to the company. The principal building contains the offices, and also the mill room, which is equipped with seven mills, one of the largest types of vacuum dryers, a mammoth vulcanizer and a number of strainers. The chemical building, devoted to the cleaning and treatment of stocks, is fitted with the latest appliances.

The power plant, to which is attached the pumping station, has a 250-h. p. direct-connected Corliss Engine and two 250-h. p. standard boilers. The company supplies its own light.

The output will be known as the "Arco Grades" of reclaimed rubber. Local transportation of stock will be handled by a three-ton Alco truck.

### CAPITAL INCREASES.

The capital stock of Morgan & Wright, tire manufacturers, of Detroit, Michigan, has been increased from \$2,500,000 to \$5,000,000, and a corresponding increase has been authorized in the capital of the G. & J. Tire Co., of Indianapolis, Indiana—both subsidiaries of the United States Rubber Co.

The capital stock of A. G. Spalding & Brothers, the well known sporting goods dealers, has been increased from \$4,000,000 to \$6,000,000.

### RUBBER COMPANY DIVIDENDS.

A quarterly dividend of  $1\frac{1}{2}$  per cent. has been declared on the preferred stock of the Kelly-Springfield Tire Co., payable April 2; and official announcement is made that a plan is under consideration for taking care of accumulated back dividends of this stock. The directors have also authorized the payment on April 1 of 4 per cent. interest on the debenture bonds, and also authorized the operation of the sinking fund by the payment of 4 per cent. on the outstanding debenture bonds to the Bankers' Trust Co. on or before April 1, 1914, for the purpose of said sinking fund.

The B. F. Goodrich Co., of Akron, Ohio, has declared a regular quarterly dividend of  $1\frac{3}{4}$  per cent. on its preferred stock, payable April 1 to stockholders of record on March 21.

The Boston Woven Hose & Rubber Co. has declared a quarterly dividend of \$3.00 per share on its common stock, payable March 15 to stockholders of record on March 5.

### THE LOEWENTHAL CO. ON THE FUTURE OF SCRAP RUBBER.

The Loewenthal Co., of New York, has recently issued and distributed to its customers the following interesting circular in regard to the outlook for the scrap rubber industry:

"Many of our customers have asked us to give our opinion as to the rubber market. The present situation being a very unusual one, we feel justified in breaking our fixed rule not to make market predictions, and we consider it our duty to advise you regarding the situation as we see it.

"The most important cause of the present condition is the extremely low price of new (crude) rubber. Much larger quantities of new rubber have come into the market than ever before in the history of the business. Cheap new rubber means cheap scrap rubber. From all information we can gather, there is no prospect that new rubber will advance for a long time to come. If such is the case, scrap rubber can not advance.

"As soon as general business conditions revive, the rubber business must naturally improve also. Rubber will be used to as great an extent as ever before, but the manufacturer will buy new rubber if he can not buy scrap at a proportionately low price.

"It seems clear, therefore, that scrap rubber will remain at a low level for an indefinite time, but that as much will be bought by the mills as formerly, if the mills can buy scrap at a price to compete with new rubber. If they can not get the scrap, they naturally will buy the crude. It is up to the dealers, therefore, to face the new conditions, and to commence as soon as possible to buy and sell in accordance with these conditions."

### THE LEE COMPANY'S NEW PLANT.

The cut presented herewith shows the new plant of the Lee Tire & Rubber Co., of Conshohocken, Pennsylvania, which has been described as "the aristocrat of the rubber mills" because of its architectural beauty and the large acreage which surrounds it.

The new plant is most favorably located along the Schuylkill river, and in close proximity to the stations of the Pennsylvania and Reading Railways, which naturally affords excellent shipping facilities. The buildings are of the most modern concrete construction and fireproof throughout. All machinery in the plant



PLANT OF LEE TIRE & RUBBER CO.

is electrically-driven, thus dispensing with shaftings and belts. The heating and ventilation—in fact, all the equipment—is of the latest and best. The two main buildings are 400 feet long and 85 feet wide, one of them being four and the other two stories high. The power plant is housed separately. The Lee factory specializes in tires and druggists' sundries, and its product is favorably regarded and extensively sold. The company employs about 750 hands, and its weekly payroll exceeds \$10,000.

**PROF. BRADLEY JOINS THE UNITED STATES RUBBER CO.**

Prof. Walter P. Bradley, who for the past 25 years has been an instructor in chemistry at Wesleyan University, Middletown, Connecticut, has resigned his position with that institution and commencing July 1 next will become associated with the United States Rubber Co., in charge of its chemical experiments and investigations. Prof. Bradley recently obtained a year's leave of absence from the college, spending that time in the employ of the United States company, where he organized a system of chemical, physical and process laboratories, the success of which, with the value of his recommendations in the manufacture of rubber thread, has resulted in this permanent connection. Prof. Bradley graduated from Williams College in 1884, following which he spent some time as a student in Germany, returning to Williams and serving on its staff for three years as an instructor in chemistry. He went to Wesleyan in 1889 and was made Professor in 1893. His work as a teacher has been highly successful. The announcement of his resignation has caused keen regret at Wesleyan, among both the students and the faculty, all of whom, however, appreciate his special fitness and ability to engage in a commercial career of such far-reaching possibilities.

**MR. VAIL'S COMFORTABLE SALARY.**

The Massachusetts Public Service Commission thought it would like to know what public service corporations pay salaries in excess of \$6,000 a year, so it asked the various corporations of this character to send in the information. According to returns received, there are not many salaries connected with these companies in excess of \$6,000, but there are a few. The salary of Theodore N. Vail, as president of the American Telegraph & Telephone Co., was reported as \$100,000. Mr. Vail is also one of the directors of the United States Rubber Co.

**MR. TOWNER ACTS AS CHAIRMAN.**

Mr. R. P. Towner, secretary and treasurer of Towner & Co., rubber distributors of Memphis, Tennessee, was chairman of the entertainment committee on the occasion of the "Prosperity Dinner" given at the Hotel Chisca, in Memphis, on January 15, by the Business Men's Club. The toastmaster at that dinner was General Luke E. Wright, and the speakers were men prominent in national railroad and banking circles. The function was a great success and reflected much credit on Mr. Towner and his aides.

Mr. Towner is greatly interested in the commercial development of Memphis, which, by the way, is one of the most enterprising cities in the south. If there were need for proof of this sufficient proof would be found in the notable publication called "Southern Prosperity" recently issued by the "Commercial Appeal." This is a finely printed and lavishly illustrated book 19 x 23 inches in size and consisting of 70 pages and cover, portraying the growth and development of Memphis' commerce and industries. The photographs showing the weighing of cotton and its shipment on the levee, illustrating the article on cotton in this issue, appeared in this special number of the "Appeal" and were secured for THE INDIA RUBBER WORLD through the courtesy of Mr. Towner.

**MR. STEPHEN DOUGLAS BALDWIN MARRIED.**

Announcement has been received of the marriage at Chicago on February 14 of Mrs. Elizabeth Blanche Crow and Mr. Stephen Douglas Baldwin (president of the Cincinnati Rubber Manufacturing Co.), who after March 1 will make their home at the Hotel Gibson, Cincinnati, Ohio.

Replete with information for rubber manufacturers—Mr. Pearson's "Crude Rubber and Compounding Ingredients."

**COMMODORE BENEDICT BACK FROM HIS CRUISE.**

Commodore E. C. Benedict, one of the directors of the United States Rubber Co. and for some years interested in rubber plantation developments and other enterprises on the Amazon, arrived on his yacht "Oneida" in New York harbor on February 18, from an 8,000-mile cruise through the West Indies and as far south as the Amazon. This is the sixth cruise covering about the same waters taken by the Commodore since 1904. Among his guests in his latest voyage to South America and back was William M. Ivins, former president of the General Rubber Co.

**R. J. FIRESTONE ON A WESTERN TRIP.**

The sales manager of the Firestone Tire & Rubber Co., R. J. Firestone, has just finished a six weeks' tour through the farther



R. J. FIRESTONE.

western states, visiting all the centers in which the Firestone company has offices and agencies.

**FOREIGN TRADE OPPORTUNITIES.**

Commercial Agent Ralph M. Odell is conferring with American manufacturers and commercial organizations regarding foreign markets for cotton goods, being located at the branch offices of the Bureau of Foreign and Domestic Commerce, 315 Custom House, New York, for about two weeks, beginning February 19.

A report from an American consular officer in a European country states that a company in his district has expressed a desire to represent American manufacturers of canvas and duck cloths. Correspondence may be in English. Report No. 12,548.

Bids will be received until March 3 by the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., for furnishing the following supplies: Schedule 6370, asbestos packing; schedule 6391, flexible steam copper hose; schedule 6304, asbestos sheets; schedule 6373, sheet rubber. Firms interested should make application to the Bureau of Supplies and Accounts, giving the schedule number.

**WALPOLE RUBBER ASSETS \$777,776.**

The receivers of the Walpole Tire & Rubber Co. have recommended the sale of the company's assets and property. The assets are placed at \$777,776, with liabilities of \$420,823. Funds sufficient to pay a dividend of from 5 to 10 per cent. are in hand, the receivers reported.



## TRADE NEWS NOTES.

The Panama Rubber Co., incorporated with a capital stock of \$13,000, has taken space in a new seven-story building at 701 Lucas avenue, St. Louis, Missouri, where a plant has been equipped for the manufacture of raincoats, dusters and other rubber garments. The officers of this new company are: Carl G. Schwarz, president; F. W. Sanner, vice-president, and G. G. Giese, secretary.

The Lion Liner Co., formerly located at Appleton, Wisconsin, has removed its plant to Sheboygan, in the same state, where in much larger quarters it will continue the manufacture of inner liners and other tire specialties.

While the terms of settlement have not been made public, announcement is made that the action brought against the Seamless Rubber Co., of New Haven, Connecticut, about a year ago, by the Batavia Rubber Co., of Batavia, New York, which alleged imitation of the Batavia tread, and has discontinued and the charge withdrawn.

Plans are under way for a large brick and steel warehouse to be occupied by the Goodyear Rubber Co.'s branch, at Milwaukee, Wisconsin. The new building will be located at 382-384 East Water street.

Dunlop wire wheels are now being manufactured in quantities in the factory recently opened for this purpose at Long Island City, New York.

A new concern—known as The Brooklyn Shield & Rubber Co.—has been formed and duly incorporated to take over the business formerly conducted by H. P. Rindskopf at 397 Myrtle avenue, Brooklyn, New York. Mr. Rindskopf is president of the new company.

The British Rubberized Fabric Co., notice of whose incorporation appeared in our February number, has been established since November last at 233-235 South First street, Brooklyn, dealing in all sorts of rubberized fabrics and manufacturing raincoats. Jos. N. Rosseau, president of the company, was formerly vice-president and general manager of the British-American Rubber Co., of St. Louis, Missouri, and the list of officers includes the name of Kieve Schor, of the Goodyear Raincoat Co., 15 East 17th street, New York.

The Tire Co. of America, recently incorporated in Illinois, will not only conduct a retail and jobbing business in tires of all kinds, at its headquarters at 1239 Michigan avenue, Chicago, but will vulcanize and repair solid and cushion tires for electric cars—being the only firm, with the exception of the large factories, engaged in this sort of work, and employing special molds invented by S. Reinsberg, president and manager of the company.

Additions and improvements which when completed will make room for an extra force of from 30 to 50 men have been started at the plant of the Mansfield Tire & Rubber Co., Mansfield, Ohio. The new addition, which is to be erected on the south side of the present factory on Newman street, will be used as a finishing room.

An automobile show will be held at Des Moines, Iowa, from March 9 to 14, under the auspices of the Des Moines Automobile Dealers' Association. Fifty-six different makes of cars and a large number of accessories will be displayed.

A show window display in the Houston, Texas, branch of the Firestone Tire & Rubber Co. recently claimed considerable attention and occasioned much comment because of its cleverness of design, being in the form of a racing automobile and composed entirely of the regular branch store stock and equipment of tires, wheels, tire boots, cans of cement, metal signs, etc.

## THE DREADNAUGHT TIRE &amp; RUBBER CO. ELECTS OFFICERS.

The new plant of the Dreadnaught Tire & Rubber Co., at Orangeville, Maryland—now in operation—has been equipped for the immediate production of tires at the rate of 500 per day, the expectation of those interested being to double this capacity in a very short time. A recent meeting of the stockholders resulted in the election of the following directors: Walter B. Swindell, Albert W. Adt, Wilmer Dunbar, C. T. Triplett, Walter E. Hill, H. C. Whitlock, A. B. Whitlock, John Alden, J. Herbert Rice and George D. Hopkins, these in turn electing as officers: Walter B. Swindell, president; Albert W. Adt and Wilmer Dunbar, vice-presidents; C. T. Triplett, treasurer, and Walter E. Hill, secretary.

## QUALITY TIRE &amp; RUBBER CO.

The Quality Tire & Rubber Co., of Hartville, Ohio, is now taking orders in anticipation of the early opening of its factory. This company, incorporated with a capital of \$75,000, will manufacture rubber tires and tubes exclusively, in the two-story brick and steel building erected especially for that purpose and which contains about 7,600 square feet of floor space. At the start the company will employ about 35 men, but with the addition of other buildings which are to be erected next summer it is expected that this force will be considerably increased. The officers of the company are: J. C. Guthrie, president; E. A. Brown, vice-president; E. B. Smith, secretary; Ed. L. Smith, treasurer. G. F. Munk, F. E. Shumacher and E. E. Smith are on the board of directors, and E. H. Trump is factory superintendent.

## THE FISK RUBBER CO.'S ANNUAL REPORT.

The Fisk Rubber Co., incorporated under the laws of Massachusetts on October 23, 1912, when it acquired the business and property of the Fisk Rubber Co. of Delaware, has issued its first annual report, for the year ending October 31. This report shows net quick assets amounting to \$3,216,037 and profits for the year are given as \$606,000, a balance of \$202,479 being left after payment of dividends declared on the preferred stock and special charge-offs. Items of expenditure include: Plant additions, \$982,745; repairs, \$106,918, and depreciation, \$71,431. Notwithstanding constant night and day operation of the plant—located at Chicopee Falls, Massachusetts—its productive capacity has not been sufficient to meet the demand, a condition which the recently completed additions are expected to remedy.

## THE GOODYEAR TIRE &amp; RUBBER CO. OF CANADA, LTD.

At the annual meeting of the Goodyear Tire & Rubber Co. of Canada, Limited, held at the company's office, at Toronto, Ontario, the following officers were elected for the new year: F. A. Seiberling, president; R. P. D. Graham, vice-president and sales manager; C. H. Carlisle, treasurer and general manager; C. J. Oille, secretary and assistant treasurer, and E. H. Koken, superintendent.

This company has made extensive alterations and improvements in the hotel property purchased about a year ago at Bowmanville, Ontario, and has converted it into clubrooms and boarding house for its employees, equipping it with bowling alleys, billiard tables, shower baths, steam heat, etc., as well as providing tennis courts and means for the enjoyment of other outdoor athletic sports. The formal opening of the clubrooms was celebrated by a banquet, the officers and employees of the local factory entertaining the twelve managers of the Goodyear Canadian branch offices.

More than a mile of hose was called into use recently in Montreal, Quebec, when it was found necessary, owing to a break in the main water conduit, to convey a stream from the St. Lawrence River to subdue a blaze at Ontario street and Providence Lane, a mile distant.

Replete with information for rubber manufacturers—Mr. Pearson's "Crude Rubber and Compounding Ingredients."

**THE LOEWENTHAL CO. CHANGES ITS OFFICE ADDRESS.**

The Loewenthal Co., of New York, has removed its offices from Watts street, where its warehouses are located, to 37 West Thirty-ninth street.

**UNITED STATES CONDITIONING & TESTING CO.**

The United States Conditioning & Testing Co., located at 340 Hudson street, New York City, has recently organized a department for determining the physical qualities of mechanical rubber and to do the usual analytical work of a well-equipped rubber laboratory. The laboratory is, in fact, maintained as a convenience for the textile industry and includes in its controlling body many prominent representatives of the different branches of this trade. It is under the charge of D. E. Douty, formerly in control of the engineering division—of which the rubber laboratory was a section—of the Bureau of Standards, Washington, D. C.

**THE ALDEN COMPANY PAYS 10 PER CENT.**

On February 24 the Federal District Court of Massachusetts confirmed the settlement agreed upon between Geo. A. Alden & Co., of Boston, and their creditors, on the basis of 10 per cent. payment, which will be made immediately. This adjustment will greatly assist the New York Commercial Co.—which went into liquidation last April, and which is one of the largest creditors of the above named firm—in the settlement of its own affairs.

**NEW INCORPORATIONS.**

Albany Belting & Supply Co., February 5, 1914; under the laws of New York; authorized capital \$20,000 (all paid in). Incorporators: Matthew Van Alstyne (president), A. Y. Van Alstyne (vice-president)—both of 309 Quail street, Albany, New York, and Charles H. Hay (treasurer), Slingerlands, New York. William D. Baker is secretary of the company, the purpose of which is to manufacture all kinds of belting and mill supplies, etc.

Bourn Insulated Wire & Cable Co., February 5, 1914; under the laws of Maine; authorized capital \$150,000. Incorporators: John H. Pierce (president), Charles L. Hutchinson, Ernest M. White, L. A. Davis—all of Portland, Maine—and Stephen W. Bourn (treasurer), Providence, Rhode Island. To manufacture, buy, sell, trade and deal in, insulated wire and cables, rubber and its allied products, etc.

Bronx Rubber & Auto Specialty Co., Inc., January 21, 1914; under the laws of New York; authorized capital, \$4,000. Incorporators: Josephine Mulholland, Joseph A. Mulholland—both of 218 West Seventy-first street—and Sidney J. Mulholland, 2600 Marion avenue, Bronx—all in New York City. To deal in tires and auto supplies.

Brooklyn Shield & Rubber Co., Inc., January 28, 1914; under the laws of New York; authorized capital \$50,000. Incorporators: Emanuel Newman, 391 Fulton street, Henry P. Rindskopf (president) and Leroy H. Rindskopf (treasurer)—both of 699 Madison street—all in Brooklyn, New York. Location of principal offices and works, Summer avenue, Hancock and Halsey streets, Brooklyn; branch offices at 1133 Broadway, New York City and 925 Chestnut street, Philadelphia. To manufacture and deal in dress shields, rubber sheetings, specialties, etc.

Chace-Barton Belting Co., Inc., February 3, 1914; under the laws of New York; authorized capital \$5,000. Incorporators: Stanley T. Chace, Alexander J. Weppner—both of 405 Linwood avenue—and Garrett P. Barton, 372 Baynes street—all in Buffalo, New York. To manufacture belting, hose, mill supplies, etc.

Delehanty Tire Corporation, January 2, 1914; under the laws of New York; authorized capital \$125,000. Incorporators: W. E. Delehanty, 139 East Forty-fourth street; N. M. Cooke, 17 East

Forty-eighth street, and J. V. Reddy, 421 Seventh avenue—all in New York City. To manufacture and deal in auto tires, etc.

Duplex Tire Company, Inc., January 16, 1914; under the laws of New York; authorized capital \$1,000. Incorporators: James Martin, Gertrude Martin—both of 145 East Fifty-third street—and Joseph E. Finney, Jr., 461 Edgecomb Road—all in New York City. Tire repair and sales business.

Duval Spring Tire Co., The, February 2, 1914; under the laws of Massachusetts; authorized capital \$100,000. Incorporators: Louis Duval, Robert B. Whitman—both of Old South Building, Boston—and Edwin S. Plaisted, Arlington—all in Massachusetts. To manufacture and sell tires for vehicles and for wheels of all kinds.

Gluckauf Company, Inc., The, February 17, 1914; under the laws of New York; authorized capital \$20,000. Incorporators: Isaac Neuhauser, 967 Trinity avenue, New York City; Morris Gluckauf and May Gluckauf—both of 456 Prospect Place, Brooklyn, New York. To manufacture suspenders, garters, etc.

Hunter Rubber Co., The, January 27, 1914; under the laws of New Jersey; authorized capital \$150,000. Incorporators: Charles A. Hunter, Norman Charles Hunter—both of 786 Broad street—and George E. Post, 102 Washington avenue—all in Newark, New Jersey. To manufacture and sell rubber goods of every kind and description, etc.

Kinton Co., Inc., February 5, 1914; under the laws of New York; authorized capital \$10,000. Incorporators: Frank C. Vinton, Walter E. Kinney and Charles E. Graves—all of Rochester, New York. To manufacture and deal in rubber articles.

New Process Rubber Co., Inc., February 4, 1914; under the laws of New York; authorized capital \$5,000. Incorporators: Henri Dujardin, 248 Washington street, T. Philip Hornsey, 309 Broadway—both of New York City—and Cornelius D. McGiehan, 2 Pearsall avenue, Jersey City, New Jersey. To rebuild tires, etc.

Old Dominion Tire Corporation, The, January 17, 1914; under the laws of Virginia; authorized capital \$10,000, minimum \$3,000, divided in shares of \$100 each. Incorporators: J. E. Guy, J. D. Guy—both of Ocean View—and B. S. Joynes, Norfolk—all in Virginia. To buy and sell tires for automobiles, etc.

Ontario Tire & Rubber Co., Inc., February 14, 1914; under the laws of New York; authorized capital \$50,000. Incorporators: Harold V. Cock, 199 Kingsley street, F. Leslie Robinson, 50 Allen street—both of Buffalo, New York—and Frank B. Rowley, 257 Broad street, Tonawanda, New York. To manufacture and deal in tires and rubber goods.

Parker-Hammerton Manufacturing Co., The, January 7, 1914; under the laws of Massachusetts; authorized capital \$50,000. Incorporators: Alfred J. Hammerton, Malden; Arthur S. Brock, Saugus, and George C. Parker, Lynn—all in Massachusetts. To buy, sell, manufacture and deal in rubber and rubber goods, etc.

Rumsey & Greutert Co., Inc., January 31, 1914; under the laws of New York; authorized capital \$100,000. Incorporators: Leslie Reid, 240 West Eleventh street, New York City; Clarence J. Weymer and Robert Rumsey—both of 23 Euclid avenue, Summit, New Jersey. To deal in rubber, gutta percha, etc.

Salvage Company, Inc., The, February 17, 1914; under the laws of New York; authorized capital \$5,000. Incorporators: Thomas Dodger, 605 West One Hundred and Thirty-first street; David A. Sterling, 126 West One Hundred and Twelfth street, and Herman Lenitz, 522 West One Hundred and Forty-seventh street—all in New York City. To deal in waste rubber, old tires, etc.

Victor Tire & Rubber Co., The, January 30, 1914; under the laws of New Jersey; authorized capital \$125,000. Incorporators: Thomas Skinner, Horace V. Williams and Edward P. Cropper—all of 20 Market street, Camden, New Jersey. To manufacture, buy, sell, import, export and deal in tires for automobiles, etc.

**THE GOODYEAR COMPANY BUILDS A WAREHOUSE NEAR NEW YORK.**

A new five-story fireproof building of brick-faced, reinforced concrete has been erected at Jackson avenue and Honeywell street, Long Island City, New York, for occupancy as a warehouse by the Goodyear Tire & Rubber Co. of Akron—this in order to better care for the New York City business, which has developed beyond expectations. The warehouse is close to the Pennsylvania Railroad tracks and is expected to greatly facilitate the company's business in this section.

**NEW DISTRIBUTING AGENCIES FOR THE BEACON FALLS RUBBER SHOE CO.**

The number of branch stores in operation by the Beacon Falls Rubber Shoe Co., of Beacon Falls, Connecticut, has recently been enlarged by the addition of two new distributing agencies—one located at 926-928 Broadway, Kansas City, and the other at 311-315 First avenue, North, Minneapolis, Minnesota. These new branches will carry complete lines of rubber footwear and tennis goods and in addition will be able to draw on the large reserve stock carried by the Chicago agency. The company now has distributing branches at Boston, New York, Chicago, Minneapolis, Kansas City and San Francisco. Necessary machinery for the manufacture of uppers for tennis lines has been installed at the factory, and this new department is in full operation.

**RUBBER BOOTS AT THE PANAMA-PACIFIC EXPOSITION.**

The importance of the shoe industry has been recognized by those in charge of the Panama-Pacific International Exposition, who have set aside adequate space in the Manufacturers' and Varied Industries Building to be devoted to an exhibition of boots and shoes, while in another section provision is made for an exhibit of rubber boots and shoes and equipment and methods used in the manufacture of India rubber and gutta percha goods. Footwear for sportsmen and travelers and for all games and sports will be shown in still another section.

**LAID IT ON THE GOLF BALL.**

The Travelers Protective Association of St. Louis has recently been made defendant in an action for damages instituted at Chattanooga, Tennessee, the plaintiff alleging that while playing golf on the links in that city he was struck upon the ankle by a golf ball, causing blood poisoning, which necessitated the amputation of the limb. In answer to complaint the association denies liability, claiming lack of evidence that the golf ball actually caused blood poisoning.

**GUM BOOTS AS LIFE SAVERS.**

A certain dairyman of Palo Alto, California, owes his life to the fact that on his early morning routes he wears good, heavy rubber boots. The two horses on the team he was driving on a recent morning came in contact with and were shocked to death by live wires which had been broken by a severe storm and had fallen into the street, and, ignorant of the possibilities of electricity, he would undoubtedly, when unfastening the harness, have shared their fate had he not been wearing rubber boots, which served as effective insulation from the ground.

**THE LEE COMPANY'S NEW RUBBER.**

The Lee Tire & Rubber Co., of Conshohocken, Pennsylvania, is now bringing to the attention of the public, as a result of more than a quarter of a century of experience in rubber manufacture and of three years of continuous experimenting, a trade-marked brand of rubber known as "Vanadium," which is used only in Lee Regular and "Zig-Zag" tires and in "Velvet" red inner tubes. This rubber is described by the manufacturers as selected rubber, refined and chemically treated with Vanadium—a process which invigorates and refreshes the rubber, increases its resiliency, as well as its density—by contracting the pores—and renders it tougher, more elastic and longer-lived than the ordinary rubber of commerce.

**TRADE NEWS NOTES.**

The William M. Gordon Rubber Co., of 85 Auburn street, Chelsea, Massachusetts, do a general business as reclaimers and general merchants in scrap rubber, buying and selling all kinds of this material.

The common council of Detroit, Michigan, has received a petition signed by eighty-two motor truck owners asking that the ordinance referring to the equipment of motor trucks with fenders be rescinded—the protest being based on inability to obtain the right kind of fenders rather than on the expense their purchase would entail.

Of the 554 patents issued in one week of this year by the United States Patent Office, 92 were granted to residents of other countries; which shows to what an extent that office is patronized by foreign inventors.

A list recently given out by the tax assessors of Naugatuck, Connecticut, shows that of taxable property in that city valued at \$10,552,598, the Goodyear India Rubber Co. is assessed for \$1,009,650. Other rubber manufacturing companies which contribute toward this total assessment are: The Goodyear Metallic Rubber Shoe Co., with property of an assessed valuation of \$899,839; the United States Rubber Co., \$280,750, and the Rubber Regenerating Co., \$200,000.

The annual three days' conference of the store managers of the Fisk Rubber Co. was held the middle of February at the company's factory at Chicopee Falls, Massachusetts, 45 branches in all parts of the country being represented. On the evening of the 13th an informal dinner was given at a local hotel.

Representatives of the Midgley Tire & Rubber Co., incorporated in January under the laws of the State of West Virginia, with a capital of \$500,000, are reported as searching for a location suitable for a tire plant, and with this in view have recently made a visit to Columbus, Ohio, the former home of Thomas Midgley, manager of the company. Most of the men connected with this enterprise are located in Pittsburgh—a fact which it is thought may influence the choice of a plant in that city.

The Firestone Tire & Rubber Co. has recently taken over the business of the Meeley Rubber Co. at Washington, D. C., which it will continue as a branch store.

A site has been sought at Wheeling, West Virginia, by a large rubber concern now located at Akron, for a tire plant, the requirements being a block of land embracing ten or twelve acres, situated above the highest flood mark. While it is believed that no options have yet been taken, several such sites are offered. The transportation facilities of Wheeling are all that could be desired, and the city hopes to secure this new industry, which, as proposed, would be one of the largest in that locality, employing between 500 and 600 men and being capitalized at \$500,000. Other rubber products would be included in the output in addition to automobile tires.

An order of exceptional size has recently been received by the Manhasset Manufacturing Co., of Putnam, Connecticut, manufacturers of tire fabrics. This order, which is from an automobile tire manufacturing concern in Ohio, calls for 300,000 pounds of fabric. The Connecticut tire fabric industry generally is in a prosperous condition.

Information has come to us that a concern prominently identified with the rubber industry—in the various centers of which it is well represented—is now prepared to market sulphurs, compounds, substitutes and other generally used commodities, for manufacturers of such articles who are not closely in touch with the rubber trade.



## CABLES 14 YEARS OLD AND AS GOOD AS EVER.

An interesting test of cable endurance has recently come to light. Fourteen years ago the Commercial Cable Co. wished to connect its New York office by underground conduits with its trans-Atlantic and other deep-sea cables, converging at a point at the eastern end of Coney Island—some 18 miles from the office. The order for these cables was given to The Okonite Co., of New York, and three cables of four conductors were laid at that time. Four years later, in 1904, three other cables of four conductors were also laid by the same company. This connection from New York to Coney Island traversed Jamaica Bay.

Not long ago the United States Government decided to dredge the channel in this bay, and the Commercial Cable Co. was asked to remove its lines—which it did, selecting a new station at Far Rockaway. The Okonite Co. provided the cables for this new connection—a distance of 22 miles—and after the work was done the cable company concluded to use the old Jamaica Bay cables as extra conductors for the Far Rockaway line. After completing a considerable part of this work the general manager wrote to The Okonite Co. as follows:

"I am pleased to state that all of the cables which we have thus far withdrawn (about 18 miles in length) have proved to be in excellent condition, so much so that we are relaying them between New York and Far Rockaway, and judging from their condition, I have every reason to hope that they will still last many years, as from their appearance the time elapsed since they were laid does not seem to have affected the insulation at all."

## THE B. F. GOODRICH CO. REPORT FOR 1913.

On February 24 the annual report of the B. F. Goodrich Co. for the year ending December 31, 1913, was made public. It shows net profits of \$2,599,747, which equals .83 of 1 per cent. on the \$60,000,000 common stock, after the payment of 7 per cent. on the preferred stock—which calls for \$2,100,000. President B. G. Work recites briefly several reasons for the falling off in net profits of the company. One is the fact that crude plantation rubber, which at the beginning of the year was valued at a dollar a pound, fell to 55 cents a pound before the end of the year. He also cites the labor troubles that occurred in Akron early in the year, and the general decline in trade all over the country, which affected the manufacturers of tires in common with other manufacturers.

He then goes on to mention various advantages which the company now has over its situation in former years—advantages arising from economies made possible by the unification of the Goodrich and Diamond plants.

The figures of the report are as follows:

	Year ended Dec. 31, '13.	Nine mos. end. Dec. 31, '12.
Net sales.....	\$39,509,347	\$37,533,861
Manufacturing, selling and general admin. expenses.....	36,451,234	33,814,527
Net profit from operation.....	3,058,113	3,719,334
Miscellaneous income.....	491,317	571,845
Total income.....	\$3,549,429	\$4,291,179
Depreciation.....	541,358	440,852
*Reduction of preferred stock.....	168,417	.....
Interest and bills payable.....	239,907	327,838
Net profit.....	\$2,599,747	\$3,522,489

\*Reduction of treasury preferred stock from cost to par value.

The consolidated balance sheet as of December 31, 1913, compares as follows:

	1913.	1912.
<b>ASSETS.</b>		
Real estate, buildings, plant, good will, etc.....	\$71,060,802	\$70,685,722
Investments in other companies.....	1,197,058	1,635,958
Preferred stock in treasury.....	2,058,700	2,227,117
Societe Francaise B. F. Goodrich.....	570,987	.....
Current assets.....	19,401,460	24,007,698
Deferred charges to operation.....	222,950	229,619
Total.....	\$94,511,957	\$98,786,114
<b>LIABILITIES.</b>		
Common stock.....	\$60,000,000	\$60,000,000
Preferred stock.....	30,000,000	30,000,000
Current liabilities.....	3,505,974	7,679,879
Reserve for contingencies.....	300,000	300,000
Surplus.....	705,983	806,235
Total.....	\$94,511,957	\$98,786,114

## ANNUAL MEETING OF UNITED STATES RUBBER CO.

The twenty-second annual meeting of the stockholders of the United States Rubber Co. will be held in New Brunswick, New Jersey, at its main office, on Tuesday, March 17, at 12 o'clock noon.

## THE LOEWENTHAL COMPANY NOT INTERESTED.

A recent issue of the "India Rubber Journal," published in London, contained a description of a new reclaiming process which, according to the article, had just been patented in England by O. A. Wheeler, E. D. Loewenthal and B. Loewenthal. In connection with this story in the English paper the Loewenthal Co. makes the following statement:

"An article appearing in a recent issue of an English rubber journal seems to have created the impression that this company is interested in a certain reclaiming process. We deem it important to correct this impression by advising the trade in general that we have not had nor have we at present any connection whatsoever with the process in question."

This process—which is called the Vulcalose process—was invented by O. A. Wheeler, of the Vulcalose Co., Hessville, Indiana.

## CONVEYOR BELTS.

The accompanying illustration shows a 14,000 pound "Longlife" conveyor belt made by the B. F. Goodrich Co. in its factory at Akron, Ohio. This company not only has the largest single rubber factory in the world but states that it also has the largest belt room, with a capacity for turning out belts ranging from the smallest transmission to immense 72-inch conveyors, at the rate of four miles per day. This particular belt is for use in



A "LONGLIFE" CONVEYOR BELT, WEIGHING 14,000 POUNDS.

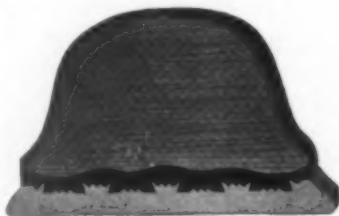
handling coal, is 36 inches wide and 1,322½ feet in length and is made of seven-ply construction with a 3/16-inch rubber cover. In order to facilitate shipment it was divided into two sections, as shown, tho it will be used on one conveyor. Goodrich belts are known and in use in almost every part of the world, not only in the United States and Canada but on all the continents and other subdivisions of the earth where mines and factories are located.

Other conveyor belts of enormous size are now being made by the Perdriau Rubber Co., Ltd., of Sydney, N. S. W., for a coal loading plant at Fort Kembla, Australia. These belts are to be approximately 1,650 feet each in length and will weigh in the neighborhood of 24,000 pounds, being made of seven-ply rubber and cotton, in one continuous length, without joints, 36 inches wide. The conveyor on which these belts are to be used will carry coal a distance of about 1,600 feet at a rate of 1,000 tons an hour.

## A Few of the Latest Tires.

### GOODRICH WIRELESS TRUCK TIRES.

THE small cut herewith illustrates one of several styles of the Goodrich truck tire which is built up on a steel base without the use of wires. The tire proper consists of three factors; the steel base, a sub-base of hard rubber and the usual solid rubber tread. The steel base is beveled and dovetailed on the upper surface. Instead of being an endless ring as in the usual pressed-on type, this steel base is cut through at one point in order to permit it to spread slightly. This allows it to be easily applied to the wheel and then drawn together by means of the flanges. This increase and decrease in circumference is so slight that it does not affect the sub-base of hard rubber. The sub-base is indicated by the black portion of the tire in the illustration. It is dovetailed into the steel base and is vulcanized along its wavy upper surface to the resilient tread, the union between these parts being made permanent so that they cannot



SECTIONAL VIEW OF GOODRICH WIRELESS TRUCK TIRE.

separate. This tire is made in a number of styles, such as the demountable endless form, the demountable and block form, the pressed-on type, and a special tire for electric vehicles. [The B. F. Goodrich Co., Akron, Ohio.]

### SOMETHING NEW FOR THE REPAIR MAN

The illustrations herewith show two different forms of a new retreading tire band which has just been placed on the market. The idea of supplying a retreading band with a non-skid pattern upon its surface is something entirely new and something which should appeal to the tire repair man in all localities. With one of these bands an old tire may be made as good as new, with the additional feature of having the safety tread. Retreading bands have been on the market for some time but the bands shown herewith are the first to embody the non-skid feature. These bands are made to fit all sizes of tires and are supplied with a number of different tread designs. (The B. F. Goodrich Co., Akron, Ohio.)



### SPARE TIRES CONCEALED FROM SIGHT.

Where to put the spare tire where it will neither be in the way nor too much in evidence has long been a problem. A recent model of the limousine presents a solution of this perplexity in the form of a cupboard added to the back of the car, constituting in fact a double back, there being nothing when the doors are closed to indicate that it is not the real back of the car. This cupboard is shallow but the full width of the car, and provides plenty of room for a spare tire and for extra inner tubes, and if necessary for a spare rim.

### AIR CUSHION TIRES FOR PLEASURE CARS.

A peculiar design of rubber tire, built by an English concern, is shown herewith. The tread of this tire, which is known as the "K-T," may be described as a band of rubber, on the surface



AIR CUSHION TIRE ON RIM.

of which are two rows of cylindrical rubber projections. The tread is made in a long strip and inserted by hand into a perforated rim, becoming the equivalent of an endless tire. The claim is made that this tire has the resiliency of the ordinary pneumatic without the disadvantages of the latter, and at the same time providing insurance against side slipping. Such a tire can be easily repaired should any part become injured through severe applications of the brakes or from any other cause, by removing the tire from the rim and vul-

canizing a new section of rubber in place of the damaged portion. [The Commercial Tyre Co., Limited, Long Acre, W. C., London.]

### NON-SKID TREAD AND INNER TUBE.

Altho the design of the tread projections on the tire illustrated herewith is somewhat new in form, these fill the same office as the styles on the usual type of non-skid tread. They are, however, built so as to grip the road at the point where most needed to guard against side slip. The tire is built up in the usual manner, with six layers of fabric and a breaker strip upon which the tread is vulcanized. The non-skid effect is produced by a



MOHAWK TREAD AND INNER TUBE.

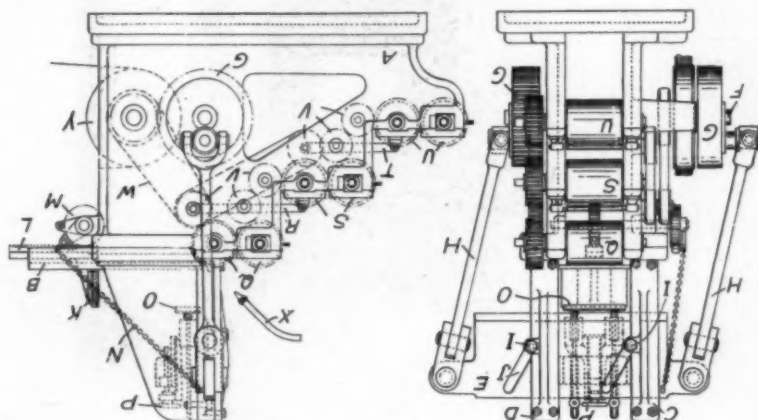
double row of Xs molded on the surface of the tread, thereby producing two rows of diamond-shaped cups which grip the surface of the road in all directions. The makers of this tire are also producing a new inner tube which is provided with a ring of reinforced fabric on the side that comes in contact with the beads of the tire casing. This does away with the separate tube protector and eliminates tube pinching. [Mohawk Rubber Co., Akron, Ohio.]

A book for everybody interested in tires—"Rubber Tires and All About Them"—this office.

## New Machines and Appliances.

### MACHINE FOR SLICING, WASHING AND SHEETING RUBBER.

**A**MONG the recent British patents is a machine designed for slicing crude rubber into sheets, simultaneously washing the rubber and rolling the sheets. The machine comprises a guillotine knife for cutting the rubber, two pairs of washing rollers and a pair of rollers between which the sheets of rubber are run after washing. The drawings



CUTTING AND WASHING MACHINE FOR CRUDE RUBBER.

herewith show a front and a side elevation of the machine. The bed *A* carries a table *B*, above which are secured two uprights *C* and *D*, forming guides for the knife *E*. A transverse shaft *F* carries two cranks *G* to which are attached the lower ends of the connecting rods *H*. The upper ends of these rods are pivoted to the outer ends of the knife *E*. The upright guides *C* and *D* carry two rollers *I* which work within diagonal slots *J* in the knife. Above the table *B* is a pusher board *K*, extending through a slot in the table, and secured above the rack *L*. This rack is moved forward a short distance after each stroke of the knife, pushing the lump of rubber in front of the board *K*, under the blade of the cutter. This is accomplished by means of the pinion *M*, to which is attached a ratchet and which is operated by each upward movement of the knife through a chain *N*. Above the table is a presser bar *O*, which is held down by means of helical springs and which is used to hold the rubber firmly in position against the table during the cutting. The carriage which bears this presser bar may be adjusted by means of the hand screw *P* to fit different sized lumps of rubber.

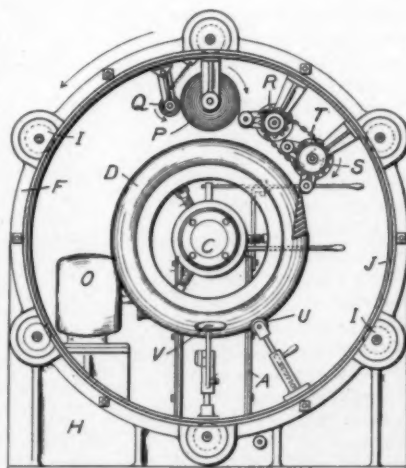
The operation of the cutting mechanism is as follows: A lump of crude rubber is placed on the table and pushed forward under the knife. When the machine is set in motion the knife is pulled downward and to one side, giving a diagonal slicing motion instead of a straight cut. On the upward movement of the knife its upper edge comes in contact with arms extending from the carriage and raises the presser bar by compressing the springs. At the same time the chain *N* operates the ratchet mechanism on the pinion *M*, thus feeding the rubber forward along the table for the

next cutting stroke. On the downward movement of the knife the chain is slackened, the presser bar grips the rubber and the cycle of operations is repeated. During the cutting a stream of water plays over the rubber from the pipe *X*.

As each sheet of rubber leaves the cutter it passes between the pair of grooved washing rollers *Q*, where it is squeezed and rolled to allow the impurities to escape. The rubber is carried by the moving conveyor *R* to the second pair of rollers *S*, where it is again rolled and pressed. The rubber is now carried on a second conveyor *T* to a third pair of rollers *U* which give a more or less polished surface to the sheets. These rollers are driven through gears *V* and chain *W* from the belt pulley *Y*. [British Patent No. 37 (1913), granted to James Donnelly, 21 Mincing Lane, London.]

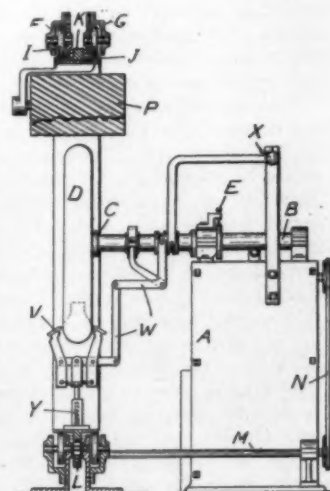
### ANOTHER NEW TIRE-WRAPPING MACHINE.

The accompanying drawings show two views of a new tire-wrapping machine upon which letters patent were recently granted and in which a well-known rubber company is interested. The machine will, no doubt, soon be placed upon the market. It is designed for wrapping the fabric of tire casings in such a way that any desired tension may be imposed upon each layer and a uniform tension imposed upon all portions of each layer. Unlike most machines of this character, the mandrel upon which the tire is wrapped is held stationary, while the wrapping mechanism revolves around it and carries the stock roll around the mandrel.



EDMONDS' TIRE WRAPPING MACHINE.

Mounted above the frame *A* is a shaft *B* which carries a chuck *C*. This chuck has radial arms, to the outer end of which the mandrel or core *D* is attached. The shaft *B* is mounted loosely in its bearings and it may be held from revolving by a pin *E* projecting into a collar on the shaft. The mechanism for wrapping the fabric on the core comprises a pair of annular rings *F* and *G* supported by the frame *H*. These rings are provided at regular intervals with six pairs of rollers *I* which bear





upon the outer periphery of the stock carrier *J*. This carrier is in the form of a large gear having gear teeth *K*. This gear is revolved by the pinion *L* on the shaft *M*, which is driven by a belt *N* through a suitable worm gear speed regulating device from the electric motor *O*. This allows the stock carrier to be revolved on the rollers *I* at different speeds.

The mechanism for applying the successive layers of fabric to the core is arranged as follows: Secured to the inner face of the stock carrier *J* is a bracket which carries the roll of stock *P*. This roll of water-proofed material is wound up with alternate layers of muslin for keeping the stock from sticking. As the stock is unwound from the bobbin the muslin is wound up on the roller *Q*. Also secured to the inner face of the stock carrier *J* are brackets carrying rollers *R* and *S* as well as three small idler rolls. The rollers *R* and *S* are connected with a chain *T* passing over sprockets on the shafts of the rollers. The sprockets are of different size, so that the two rollers must turn at different speeds. When a tire is to be formed around the core, the fabric from the roll *P* is threaded around the idler rolls and then applied to the outer surface of the core. The stock carrier *J* revolves in the direction indicated by the arrow, and the constant speed of the rollers *R* and *S* insures a uniform tension on the fabric. In order to remove air bubbles from underneath the fabric and to spread it evenly, a spring pressure roller *U* is employed. Also, in order to perform the operation of stitching, which is the ironing or rolling of the strip of fabric along the lateral surfaces of the core, a pair of rollers *V* are used. To control the movement of these rollers over the surface of the fabric a system of levers *W*, operated by the hand lever *X* through sliding collars on the shaft *B*, is installed. By this means the rollers may be held outward against the pressure of the spring *Y*. [United States Patent No. 1,080,683, issued December 9, 1913, to Charles A. Edmonds, of Akron, Ohio.]

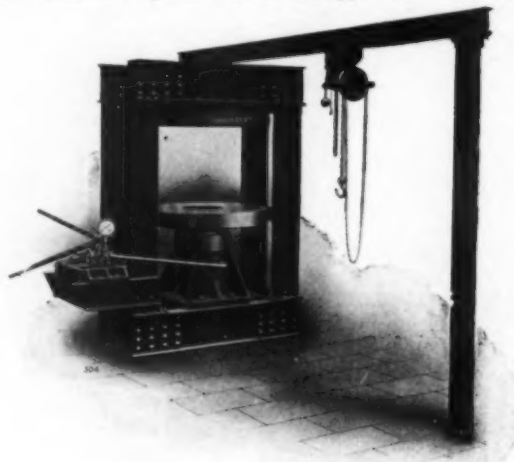
#### A RUBBER SKIVING MACHINE.

In the accompanying drawing is shown a machine recently introduced to the rubber trade. This machine is designed for skiving or tapering the ends of rubber tubes which are to be spliced. This applies particularly to the inner tubes of automobile tires. The cutting mechanism comprises a circular knife carried on an arbor which rotates at a speed of 2,000 revolutions per minute. It will be seen from the drawing that the machine is of extremely simple construction. The circular knife *A* is turned by power applied to the belt pulleys *B*, or by means of an electric motor *C* directly connected with the arbor shaft. The rubber tube is inserted through the centre of a brass arbor *D* and the end of the tube is folded back over the tapered end of the arbor. This stretches the tube so that it is slightly larger in diameter at the end than at the place where it is folded over the arbor. The sliding carrier *E* of the arbor *D* is now moved toward the revolving cutter *A* by raising the operating lever *F*. This moves the tube forward into the knife, cutting away the rubber and giving the end of the tube a gradual taper. Water is supplied to the work through a pipe *G* in order that the rubber may be more easily cut and to keep the material and the cutter from overheating. A tray *H* is fastened to the frame of the machine underneath the cutter to catch the waste water and to drain it away from the machine. [Allen Machine Co., Erie, Pa.]

The collapsible shaft made by the Cameron Machine Co., of Brooklyn, and placed on trial in factories at that company's expense, is in active request among the rubber mills of the country.

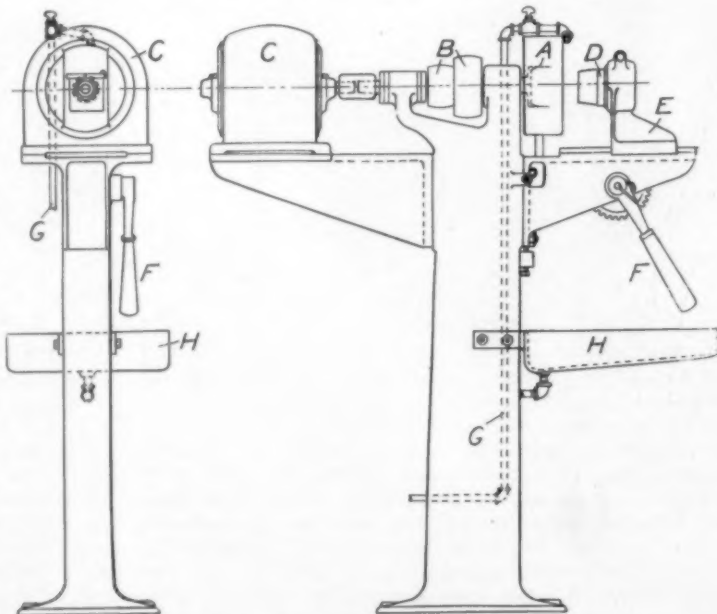
#### THE SHAW HYDRAULIC TIRE PRESS.

The hydraulic press shown in the accompanying illustration is a special type of press recently placed on the British market. This apparatus is designed for pressing solid band tires on wheels or rims and it may be used either in the garage or the factory. The frame work consists of steel I-beams riveted together and arranged so that the lower beams form a foundation for the hydraulic cylinder. Pressure is obtained for raising the table on the upper end of the ram by



HYDRAULIC TIRE PRESS.

means of a set of pumps with both high and low pressure cylinders. The press is made in three sizes, with 10, 12 and 14-inch rams working at a pressure of 200 pounds per square inch. At one side of the press is a runway girder forming an overhead track for a lifting block and chains, by means of which heavy wheels and tires may be easily lifted upon the plunger table. The press can be fixed in any position where a solid floor is available, since no foundation is required other than that which forms a part of the machine itself. [Francis Shaw & Co., Manchester, England.]



THE ALLEN SKIVING MACHINE.

## The India Rubber Trade in Great Britain.

*By Our Regular Correspondent.*

### THE MOTOR SHOW.

THE North of England Motor Show, at Manchester, was held this year on January 9 and the following days for pleasure cars, and on January 30 and the following days for trade vehicles. Both shows were held at the City Exhibition Hall instead of (as had been intended) at the larger Exhibition Hall outside the city, the latter having been burned down—presumably by suffragettes—in December. Last year the two shows were held simultaneously, one at each building, which was found to be inconvenient for people who wanted to get in touch with one another. Both shows were on a large scale, especially the latter, the side streets around the hall being lined with a variety of vehicles for which space could not be found inside. The use of the motor lorry for the transport of goods increases year by year, and special attention was paid to those types certificated by the War Office, which pays a subsidy of £110 to purchasers who agree to lend them, in case of demand, to the department for its services. These vehicles—of which I may mention the Karrier lorry and the Wolseley—are built for net loads of 3 to 4 tons.

But it is customary in these notes to limit myself to rubber, so passing on to tires, I may say at once that nothing really novel was on view. The great majority of the solid tires shown were of the band type in which the steel band is vulcanized into the rubber. The gallery of the hall was devoted mainly to tires, the firms exhibiting at the second show being the North British Rubber Co., Limited, The Dunlop Rubber Co., Chas. Macintosh & Co., The Continental Rubber Co., The Shrewsbury & Challiner Tyre Co., the Midland Rubber Co., the Avon Rubber Co., the Peter Union Tyre Co., the St. Helens Cable & Rubber Co., the Prowodnik (Columb Tyre Co., Limited, London), the Polack (Leo Swain & Co.) Liga Tyres, Limited, the Simplex Rubber Co., and last but not least, the De Nevers Rubber Tyre Co., Limited—the Count De Nevers being in attendance for the first time at these shows. The demand for the De Nevers band tire has necessitated a considerable enlargement of the works at Earlsfield, near London. The concern is a private, limited company, the count being chairman and managing director. The Prowodnik company had its red solid and dull brown pneumatic tires on view. A month or two ago I mentioned that these tires were sold at a higher price than competitive makes. This, I am told officially, was due to the demand overtaking the supply, and that now prices conform to those of other leading makes. The company—which is, of course, the well known Russian one located at Riga—has recently opened a branch in America.

Prominent among the newcomers to this show was the Simplex Rubber Co., Limited, of Scrubbs Lane Works, Willesden, London, whose stand contained the solid Simplex band tires for commercial motor vehicles. With regard to these tires, it is stated that they contain nothing but the finest quality materials, and that the process by which they are made as well as the machines employed in their manufacture are protected by the company's own patents. In this connection I may mention that the Simplex Co. is closely concerned with re-formed rubber and claims to hold the master patents concerned with their procedure of re-forming. Except the statement that these tires are cheaper at first cost than any others on the market, there is no information to be gained as to whether they consist wholly or only in part of re-formed rubber. Any authoritative statement on this point would certainly be of great interest, considering how little commercial success has been achieved by the several re-

forming companies. These tires carry the usual guarantee of 10,000 miles and are said to have considerably exceeded this in practice.

### NEW TEXTILE FIRMS.

For some time past there have been rumors that a large rubber manufacturing firm was to commence making its own tire fabric, tho the preliminaries have been kept very quiet. Definite information up to a certain point is, however, now available in the fact that two new companies were registered in London in the last week of January, among the objects of each of which was the adoption of an agreement with the Dunlop Rubber Co. The new concerns are: Tyre Yarns, Limited, with a capital of £60,000 in £5 shares, and Fabric Weavers, Limited, with a capital of £40,000 in £5 shares—both being private companies. The directors are the same in each case, all of them men closely associated with and well known in the Lancashire cotton industry. As long as the agreement is in force the Dunlop Co. has the right to nominate one director of each company. Altho some of our rubber works have directors occupying seats on the boards of cotton mills, these new registrations, whereby definite agreements are adopted with a rubber works, constitute a departure which is attracting no small attention in the trade.

### SIR SAMUEL TURNER.

The primarily a matter of interest and congratulation to his fellow townsmen of Rochdale, the inclusion of Mr. Turner in the New Year's honors list as a Knight, is an event on which no doubt many American readers of this journal would be glad to have their congratulations expressed by the medium of these notes. In his native town Sir Samuel Turner has long been known as a large employer of labor and also as a generous benefactor to local institutions and charities. Originally a cotton spinner, he instituted and brought to perfection the art of weaving asbestos, thus initiating a business which is now carried on by Messrs. Turner Bros. & Co., and which is known the world over.

### PIRELLI & CO.

This well known rubber manufacturing company of Milan—the only one of any importance in Italy—has decided to manufacture electric cables in England as well as in Spain, where a branch works has been established for some years. A British company has recently been registered with a capital of £200,000 in £5 shares. Agreements have been made with the General Electric Co., Limited, of London, and the object is to manufacture all classes of electric cables. A large factory is now in course of erection at Southampton, a southern town which has largely increased its population in recent years owing to shipping developments but which has not hitherto been associated with manufacturing ventures except on quite a small scale.

### LITTLE KNOWN USES FOR RUBBER.

Every now and then I come across a use for rubber of which I had hitherto been in ignorance, and assuming—rightly or wrongly—that others may be in the same gloom of ignorance, I hasten to enlighten them, however small the matter may be from a commercial standpoint. I refer on the present occasion to the goggles which are worn by mineral ore breakers in chemical and other works. I don't know what the situation is with regard to other countries, but in Great Britain the use of goggles is not compulsory, being a matter for the management to determine. Thus, I find that while they are regularly used by the men in some works, in others they are conspicuous by their absence. Altho rubber bands are not absolutely necessary,

in some form or other they are generally used. In some cases, especially with the glass goggle—not the most approved type—the rubber band to go round the head is of the ordinary braided variety, like a hat elastic, and, like the latter, is frequently found to be minus its elasticity after a comparatively brief use. A better tho more expensive form is the solid rubber cord about  $\frac{1}{8}$ -inch thick. I found this in use at one of our very largest chemical works. This is employed for the brass wire goggles which the firm makes on its own premises, the rubber cord being purchased from a particular rubber works.

#### XYLOR RUBBER CO.

A few months ago I mentioned that this company had been formed in England by the Firestone Tire & Rubber Co., of Akron, for the production of reclaimed rubber. There are two English directors and considerable progress has been made on the buildings being erected in Trafford Park, the walls of which are of reinforced concrete. The contract for the machinery has been given to Messrs. Francis Shaw & Co., of Manchester, and electric power will be used throughout. Mr. E. L. Curbishley has been appointed general manager. Mr. Curbishley has been connected for the last year with the Lloyds Rubber Co., and it will be remembered that for many years he was director and manager of the Gorton Rubber Co., leaving it some time ago.

#### RUBBER TILING.

Altho the future of the rubber pavement for street or even courtyard use is somewhat problematical, manufacturers generally seem to be agreed that rubber tiling for indoor use will increase in importance as an item in the mechanical rubber trade. A prominent firm in this connection is the Leyland & Birmingham Rubber Co., which, in addition to a considerable amount of tiling put down at the Exchange Hotel, Liverpool, and the Metal Exchange, in London, has also secured the order for doing Lloyds shipping offices in London.

#### GORTON RUBBER CO., LIMITED.

The Gorton and Droydsden works of the Gorton Rubber Co., Limited, now in liquidation, were put up for sale by auction in Manchester on January 20. The properties were offered as going concerns, jointly or separately, but altho there was quite a large attendance the auctioneer failed to obtain a single bid, despite his assurance that the purchaser could not help making money, seeing how much was being made by Moseley, Macintosh and Mandleberg. The works are advantageously situated and have been fitted in quite recent years with a considerable amount of up-to-date machinery. The opinion was expressed after the abortive proceedings that the result was a foregone conclusion and the break up of the works and the disposal of the plant and machinery by private treaty was inevitable.

#### "AMERICAN HUSTLE."

This term, "speeding up," and whatever other synonyms it may have, have, until recently, had merely an academic interest for British manufacturers. Times, however, are changing and the development of American enterprise in England has brought the subject of American methods closely home to both capital and labor in certain districts. Perhaps the most important of these is Trafford Park, Manchester, the locality where, as I mentioned in my last notes, the Firestone Tire & Rubber Co., of Akron, is putting up a new reclaiming works. This company is said to have been influenced *inter alia* by the ruling wages being lower than in America. This, of course, is the state of affairs generally in the labor market; and in the skilled engineering trades the difference is sufficiently great to allow of a substantial rise in the rate of wages over the ordinary English rate without attaining to American expenses in this respect. In spite of the hustling they are subjected to, the workmen in a large American engineering works in Trafford Park are more than satisfied with their position, on account of the large weekly wage they draw. This makes them disinclined to join their fellows in other works in strikes, a matter which at the time of writing is portending

serious trouble. Office boys also have stated, on leaving their places, that they are going to the American works at several shillings a week higher wages, so that it is not surprising that the American invasion is being discussed with interest in local commercial circles. At the moment the profit sharing scheme announced recently by the Ford Motor car works at Detroit, is being much discussed in Manchester, as the company has two works in Trafford Park. It appears that the floor sweepers in the Manchester works are not to have one pound a day each, as in Detroit, because the cost of living is much less in England than it is in America. This decision is a great relief to British employers of labor in that district, as they could not possibly emulate such scales of payment, which it is felt would cause a general upheaval in the local labor world.

### SOME ENGLISH RUBBER STATISTICS OF THE WORLD.

ACCORDING to English statistics, the world's production of rubber for 1912 was 99,000 tons, and for 1913 was 105,670 tons. The distribution of consumption for the two years was as follows:

TABLE A.

	1912.		1913.	
	Tons.	Per cent.	Tons.	Per cent.
America and Canada..	47,500	48	47,200	44.6
Germany and Austria..	16,000	16.2	16,600	15.8
England .....	14,500	14.7	18,000	17.2
France .....	10,000	10.1	9,000	8.6
Russia .....	9,000	9	11,500	10.9
Italy .....	1,000	1	1,370	10.9
Japan and Australia...	1,000	1	2,000	1.7
Total .....	99,000	....	105,670	....

The increase in consumption of 6,670 tons, or about 6 per cent., was thus principally due to England and Russia.

The estimate for 1914 is 107,000 tons, being a slight total increase over 1913; the anticipated larger quantity of plantation being offset by reductions in Brazil and miscellaneous rubbers. On this basis the figures for the three years would stand:

TABLE B.

	1912.	1913.	1914 estimate.
Plantation .....tons	28,590	47,200	65,000
Brazil .....	42,410	39,370	32,000
Miscellaneous .....	28,000	19,100	10,000
Total .....	99,000	105,670	107,000

As compared with 1912, plantation rubber would thus show for 1914 an increased production of 36,410 tons, while Brazil and miscellaneous kinds represent respectively a decrease of 10,410 and 18,000 tons. The net increase since 1912 would be thus about 8,000 tons, or rather more than 8 per cent.

#### ENGLISH IMPORTS AND EXPORTS.

Official figures of English imports and exports for 1898, 1912 and 1913 show the following results, to which is appended the difference, represented apparently by home consumption, tho differing somewhat from the figures shown in table A.

TABLE C.

	Imports.	Exports.	Retained for Consumption (estimated).
1898 .....tons	24,476	14,742	9,734
1912 .....	55,023	36,299	18,724
1913 .....	70,287	45,011	25,276

TABLE D—SOURCES OF ENGLISH RUBBER IMPORTS.

	1911.	1912.	1913.
French West Africa.....tons	1,281	1,507	1,009
Peru .....	1,570	1,606	1,301
Brazil .....	15,752	15,175	16,232
Gold Coast .....	1,215	784	667
Straits Settlements and Labuan	6,182	10,671	15,103
Federated Malay States....	2,918	6,354	9,880
Ceylon .....	2,235	4,062	6,705
Other countries .....	14,143	14,864	19,390
Total .....	45,296	55,023	70,287



TABLE E—DESTINATIONS OF ENGLISH RUBBER EXPORTS.

	1911	1912.	1913.
Russia .....	2,552	3,610	6,353
Germany .....	7,743	8,565	9,730
France .....	4,281	5,266	5,318
United States.....	9,696	14,740	17,790
Other countries.....	4,290	4,118	5,820
Total .....	28,562	36,299	45,011

The proportion of plantation sold at auction as compared with total product is shown as follows:

TABLE F—LONDON AUCTIONS.

	1911.	1912.	1913.
Quantity sold .....	9,238 tons	17,507 tons	23,300 tons
Proportion of total plan- tation rubber pro- duction .....	64 per cent.	61.3 per cent.	46.6 per cent.

The lower percentage of sales by auction, notwithstanding increased quantity, is partially attributable to the fact that plantation owners have been developing other outlets for their production, which has apparently grown faster than the capacity of the auctions to dispose of it. The increased plantation production of 1913 over 1912 (as shown by table B) was about 19,000 tons, of which only about 6,000 tons are represented by the excess in quantity sold by auction in 1913 as compared with 1912.

That larger quantities are coming forward from the East is, however, evident by the monthly returns of plantation rubber afloat, which grew from an average of about 5,000 tons in the earlier half of 1913 to about 6,700 tons (or one-third more) for the last four months of that year.

The area planted in rubber is estimated for 1913 as follows:

TABLE G.—ACREAGE PLANTED IN RUBBER.

	Acres.
Malay Peninsula.....	667,000
Ceylon .....	230,000
Java, Sumatra, etc.....	267,000
Other countries .....	55,000
Total .....	1,219,000

MR. AKERS' ESTIMATE OF EASTERN PLANTATION RUBBER PRODUCTION.

	Tons.		Tons.
1913.....	54,550	1917.....	213,800
1914.....	84,250	1918.....	257,250
1915.....	131,300	1919.....	302,450
1916.....	173,550		

#### REDUCTION IN LONDON DOCK RATES ON RUBBER.

In consequence of representations made by the Rubber Growers' Association, the Port of London authorities have made reductions averaging about 10 per cent. in their dock rates on rubber, as well as a modification in their charges for sampling, inspection, etc.

#### LONDON PLANTATION PRICES NET.

By the operation of the new rules which came into force on January 1, the allowances hitherto customary of  $2\frac{1}{2}$  per cent. discount and  $\frac{1}{2}$  per cent. draft on plantation rubber in London are no longer made by sellers. This change equals an advance of 3 per cent., or about  $\frac{3}{4}$ d. per pound at the present price of rubber.

#### RUBBER PAVING.

Interest in the subject of rubber paving still continues to be manifested in Europe. The London press reports that the underground room at Lloyds (the insurance exchange) is now being covered with a composition of rubber guaranteed to last for 20 years. The committee of the London Metal Exchange are said to be much gratified with the success of their new rubber floor covering; noise and the smell of rubber having been reduced to a minimum. Other specimens of rubber paving are being shown in the west end at 12 Old Bond street and elsewhere.

#### THE FOURTH INTERNATIONAL RUBBER AND ALLIED INDUSTRIES CONGRESS.

THE fourth International Rubber and Allied Industries Congress will meet at the Royal Agricultural Hall, London, on Tuesday, June 30. Sir Henry A. Blake, president, will welcome the delegates and deliver an inaugural address. Those who attended the conference meetings held in connection with the Rubber and Allied Trades Exhibition in London in 1911 will recall the many profitable discussions that followed the reading of an exceptionally interesting series of papers. The intention is that the conference meetings connected with the coming exhibition of 1914 shall be so arranged and conducted as to be of still more interest and profit to those who attend. To facilitate the arrangement of the daily conference programs it is requested that all who intend to present papers should send in the titles at once.

The executive committee invites the presentation and reading of papers by any who desire to do so; and in order that all papers written in languages other than English may be translated, and the translations ready for circulation at the conference meetings, it is urged that papers be prepared and forwarded to London at the earliest possible date. While it is necessary to register every member attending the conference, no subscription is asked for, and the secretaries request that all those who propose to attend and take part register at once, so that all future notices may be sent to them. A room has been set apart in the exhibition to enable members to illustrate their papers or lectures by means of lantern or other apparatus.

All correspondence relating to the congress should be addressed to the secretaries, Fourth International Rubber and Allied Industries Congress, 75 Chancery Lane, London, W. C.

#### PRINCE ARTHUR WILL OPEN THE RUBBER SHOW.

The approval of King George having been obtained, Prince Arthur of Connaught will open the Rubber Exhibition to be held at the Royal Agricultural Hall, London, from June 24 to July 9. The Right Honorable Lewis Harcourt, M. P., Secretary of State for the Colonies, will be present at the opening and will deliver an address on that occasion. It is also expected that the King and Queen will pay a visit to the exhibition during its progress. Thirty-five British and foreign governments are to be represented by exhibits, also many important associations and companies, as well as manufacturers and others connected with the industry.

#### A LETTER FROM SIR HENRY BLAKE ON THE INTERNATIONAL RUBBER CONGRESS.

MYRTLE GROVE, YOUGHAL, IRELAND,  
4th February, 1914.

THE EDITOR, INDIA RUBBER WORLD.

Sir:—At the International Rubber Exhibitions of 1908 and 1911 papers were read by planters, chemists and manufacturers on everything connected with the production of rubber, and discussions followed that brought to bear the experience of experts from every rubber growing country in the world. These papers and discussions were fully reported and reproduced in two books that remain valuable works of reference on every question connected with the industry, in which is engaged so many millions of capital.

As the Fourth Rubber Exhibition and International Rubber Congress opens on the 24th June, I shall be glad if any person who desires to read a paper on any subject connected with the growing, curing or manufacture of rubber, or the possible expansion of its uses, or to take part in the discussions, will kindly communicate and register their names as early as possible with the honorary secretaries of the International Rubber Congress, 75, Chancery Lane, London, W. C.

I am, your obedient servant,

HENRY A. BLAKE, G. C. M. G.  
President.

### INTERNATIONAL CONFERENCE OF TROPICAL AGRICULTURE, LONDON, 1914.

ACCORDING to a preliminary notice, the above congress will be held under the auspices of the International Association for Tropical Agriculture, the French and British sections co-operating in the arrangements.

The congress will be held at the Imperial Institute, South Kensington, London S. W., from June 23 to June 30 next. At the morning sessions papers and subjects of general importance will be discussed, while those of a special character will be taken up in the afternoons.

Papers are suggested upon the following and kindred subjects for the morning sessions:

I. Technical education and research in tropical countries. II. Labor organization and supply in tropical countries. III. Scientific problems of rubber production. IV. Methods of developing cotton cultivation in new countries. V. Problems in fibre production. VI. Agricultural credit banks. VII. Agriculture in arid regions. VIII. Problems in tropical hygiene and preventive medicine.

For the afternoon meetings papers are invited on the following topics:

I. Problems relating to tropical agriculture and forestry. II. The cultivation and production of rubber, cotton, fibres, cereals, tobacco, tea, coconuts, other agricultural and forest products. III. Plant diseases and pests affecting tropical agriculture.

The president is Professor Wyndham R. Dunstan, director of the Imperial Institute, London; the vice-presidents including representatives of Belgium, Brazil, British India, Egypt, Ecuador, England, France, Germany, Italy, Mexico, Netherlands, Portugal, Russia, Spain and Turkey.

Among the members of the congress will be Mr. M. Kelway Bamber, government chemist, Ceylon; Professor P. Carmody, director of agriculture, Trinidad; Professor J. B. Harrison, director of Department of Science and Agriculture, British Guiana; Mr. L. Lewton-Brain, director of agriculture Federated Malay States; Mr. R. N. Lyne, director of agriculture, Ceylon; Mr. F. A. Stockdale, director of agriculture, Mauritius, and Mr. W. S. D. Tudhope, director of agriculture, Gold Coast.

Communications should be addressed to: The Organizing Secretaries, Third International Congress of Tropical Agriculture, Imperial Institute, London, S. W.

Members of the congress will be entitled to free admission to the rubber exhibition then taking place at the Agricultural Hall, Islington, London.

### CONTINENTAL RUBBER STATISTICS.

FOLLOWING are statistical details affecting some of the principal countries of Continental Europe.

#### FRANCE.

Imports and Exports of Crude Rubber for 10 Months ending October 31.

IMPORTS FROM—	1911.	1912.	1913.
Brazil .....	2,401	3,829	3,079
England .....	3,918	4,531	4,564
French Congo .....	280	57	102
Senegal .....	461	289	147
Other French West Africa..	1,425	1,554	1,497
British Indies.....	651	565	577
Other countries.....	5,287	4,669	4,633
Total .....	14,423	15,494	14,599
EXPORTS TO—	1911.	1912.	1913.
Germany .....	1,513	1,299	1,173
England .....	3,170	2,113	2,798
United States.....	2,157	3,046	1,996
Other countries .....	3,336	4,200	3,011
Total .....	10,176	10,658	8,978

#### GERMANY.

Imports and Exports of Crude Rubber for 10 Months ending October 31.

IMPORTS FROM—	1912.	1913.
Brazil .....	6,247	4,993
Mexico .....	1,649	497
British Indies .....	1,729	3,882
British Malacca .....	570	623
Ceylon .....	572	1,010
Dutch Indies .....	907	930
Belgian Congo .....	1,548	1,568
Cameroons .....	1,790	1,555
Other countries .....	3,554	3,625
Total .....	18,566	18,683
EXPORTS TO—	1912.	1913.
Belgium .....	149	113
France .....	161	147
Great Britain .....	335	269
Austria-Hungary .....	496	509
Russia .....	567	355
United States .....	2,434	1,825
Other countries .....	302	242
Total .....	4,444	3,460

#### GUTTA PERCHA.

	1912.	1913.
Imports (10 months).....	2,183	2,037
Exports (10 months).....	191	338

#### BALATA.

	1912.	1913.
Imports (10 months).....	687	1,016
Exports (10 months).....	191	337

#### RUBBER SCRAP, ETC.

	1912.	1913.
Imports (10 months).....	6,006	4,190
Exports (10 months).....	5,348	4,789

#### RUBBER SUBSTITUTES.

	1912.	1913.
Imports (10 months).....	686	608
Exports (10 months).....	180	380

#### BELGIUM.

##### CRUDE RUBBER.

	1912.	1913.
Imports (for year).....	11,410	12,087
Exports (for year).....	8,550	8,698

#### ITALY.

##### CRUDE RUBBER.

	1912.	1913.
Imports (for year).....	3,390	2,156
Exports (for year).....	329	569

#### SWEDEN.

##### CRUDE RUBBER.

	1912.	1913.
Imports (for year).....	735	839

#### AUSTRIA-HUNGARY.

##### CRUDE RUBBER.

	1912.	1913.
Imports (for year) .....	2,604	2,749

#### GERMAN EXPORTS OF RUBBER GOODS IN 1913.

Provisional statistics show that exports of German rubber manufactures rose in quantity from 18,276 tons in 1912 to 19,706 in 1913, showing an increase of about 8 per cent. The value showed an advance from the equivalent of about 30 million dollars to 32 million dollars, or a gain of only about 6 per cent. owing to the lower range of prices which prevailed in the export trade. The classification of exports for 1913 shows: soft rubber goods 18,273 tons and hard rubber goods 1,433 tons.

# SILVER JUBILEE OF KOMMERZIENRAT LOUIS HOFF.

**K**OMMERZIENRAT LOUIS HOFF, the well-known director general of the United Harburg-Vienna Rubber Factories, celebrated on January 15 the twenty-fifth year of his connection with that company. His commercial apprenticeship began in 1866 with the Hamburg import firm of D. & L. Oppenheim, after which he visited England, France and the United States. Fol-



KOMMERZIENRAT LOUIS HOFF.

lowing his return to Europe in 1876 he started business in Paris, undertaking the agency of the above-named Harburg concern for France, Spain and Portugal, and making in 1887 an extended trip through North and South America. His success having come to the notice of the board, he was called to Harburg in January, 1889, as representative of the business director, Herr Gerig, after whose death in 1891 he was entrusted with the commercial management of the company in which he has been so successful, particularly in the export trade.

Herr Hoff, being deeply interested in the whole German rubber industry, was appointed chairman of the Central Committee of German Rubber Factories, his success in the development and strengthening of that committee being generally recognized.

Among honors conferred upon Herr Hoff has been the German Order of the Red Eagle, for the establishment of the International Galalith Co., as well as the title of Royal Prussian Counsellor of Commerce. He is a member of the Harburg Chamber of Commerce and upon the Committee of the United German Chambers of Commerce, as well as on the Railway Council.

For the last 10 years he has been a national adviser for the development of import and export trade, having also taken an active part in the administration of the various benevolent funds connected with his company.

On the occasion of the twenty-fifth anniversary of Herr Hoff's association with the United Harburg-Vienna Rubber Factories he received congratulations not only from all the rubber men of Germany, but from friends situated in the four quarters of the globe, all of whom felicitated him on the completion of a quarter of a century of successful association with the great company that he directs and wished him still many years of activity in the management of that company and in his efforts for the general welfare of the trade at large.

## THE GERMAN TIRE TRADE DURING 1913.

While the German tire trade for 1912 was by no means satisfactory, that of 1913 failed to show the anticipated improvement. In fact, under the pressure of foreign competition, a reduction in prices became necessary in June, followed by a further one later on. According to German opinion, the prices of automobile tires are now so low that it is a matter of doubt whether first-class qualities can be delivered on the present basis. The small and medium-sized dealers are to a large extent eliminated from the German automobile tire business. Even in the large cities, the business has got into the hands of a few large firms.

Bicycle tires were formerly a relatively profitable section of the trade, as long as the large factories did not cut prices, but when the recent fall in rubber commenced, some of them announced reductions. Instead of improving their qualities, owing to the lower prices of rubber, they commenced a general price cutting, leading to a depreciation of the article.

The opinion has been expressed that the rubber factories should consult together as to how the present intolerable conditions can be remedied, particularly as to advancing prices for automobile tires; abolition of mileage guarantees; establishment of minimum prices for bicycle tires, and sales of seconds. It is also proposed to abolish the guarantees hitherto usual for bicycle tires, those afforded by the law being regarded as sufficient.

## OPPOSITION IN GERMANY TO RENTING OF MOTOR VEHICLES.

In a letter to the "Radmarkt und Motorfahrzeug," Herr Witold Milz, president of the Alliance of German Automobile and Bicycle Dealers, states that German dealers in those branches are making an organized opposition to the system of renting. In one instance, 60 dealers in a South German city became, within a few days, members of the above association, which has for its object the abolition of that system. Various important companies which some years ago were pushing this kind of business, are now making united efforts to be free from it. In Bremen, the dealers have decided to abandon the plan as hurtful to the best interests of the trade.

## SPORTING GOODS IN THE GERMAN RUBBER INDUSTRY.

Within the last few years there has been such a development of athletic sport in Germany, with an accompanying demand for the various appliances that go under the head of "sporting goods"—including many rubber devices—that the German manufacturers have not been able fully to meet this demand. Consequently the large English houses in that line have been pushing trade with German dealers, and have been doing quite a satisfactory business.

The German manufacturers in this line gradually obtained recognition and, it is claimed, can today withstand any foreign competition. Yet the idea prevails in Germany that foreign sporting goods are preferable to domestic products. The German manufacturers are therefore trying to disprove this assertion.

Balls (tennis, hockey, cricket and golf) are in good demand, as well as football bladders. German balls have met with approval in foreign contests and tournaments, it being stated that their merits are demonstrated by the important shipments made to foreign countries. The most salable articles are those for hockey (outdoor and indoor), light athletics and football. Ankle supporters and protectors, gloves, knee protectors and other appliances used by players are also in demand.

In 1916 the Sixth International Olympiad will take place at Berlin, in which pupils of schools and academies, as well as army and navy officers and men, are invited to participate, and in preparation for which annual contests will meanwhile take place. There is no doubt that sport is making more and more progress in all classes of the German population.



## RUBBER NOTES FROM BRITISH GUIANA.

By Our Regular Correspondent.

THE announcement has been made that the Government is drafting a bill to give effect to some of the recommendations of the Balata Committee, which issued a comprehensive report in 1912 offering certain suggestions for removing the difficulties created by the absconding of laborers after they had received an advance in wages prior to their going into the hinterland. According to the announcement recently promulgated, the Government proposes to go a great deal ahead of the recommendations of the Balata Committee, which were disapproved of by the Institute of Mines and Forests, the body most intimately concerned. At the present time the institute registers and contracts laborers for the forest industries. It appears that in the bill that is being drafted by the Government both registering and contracting are to be done by the Lands and Mines Department. This will to all intents and purposes leave the institute without an occupation, and means the practical extinction of that useful organization, which was formed more than 20 years ago to deal with the difficulties existing at that period between employer and laborer in the gold industry.

In order to understand the position more clearly and to estimate the justice and wisdom, or otherwise, of the Government's action, it is desirable to recall the origin of the Balata Committee. There has always been a certain amount of absconding going on in the balata industry, and there always will be so long as the advance system prevails. The advance system is likely to prevail for many years yet in the peculiar conditions under which the balata industry is being conducted. The laborers have to make long journeys into the interior, where they remain bleeding the balata trees for many months in the year. Before they go they obtain an advance upon their earnings, which they sometimes leave with their families, and which more often they use for a final "spree" before leaving for their self-imposed exile in the interior. The system is an old one and time honored, and it would not be easy to conduct the hinterland industries without it.

Nor was the system a very harmful one in the old days, when the demand for labor was moderate, and the output of balata was, like the number of companies engaged in the industry, comparatively small. But an echo of the great rubber boom of 1910 was heard in this colony. All sorts of companies, good, bad and indifferent, were formed for exploiting the British Guiana balata industry. The demand for laborers enormously increased. The competition—it was a very unhealthy competition—took the form of offering the balata bleeder better advances. The temptation proved too great for him. He found that he could get an advance of as much as \$60, and instead of fulfilling his contract he would register elsewhere in a different name, sign another contract and secure another handsome advance. This trick was performed with success sometimes repeatedly, and laborers found it easier than working. When they were caught, as they most frequently were, and taken before a magistrate charged with breach of contract, they accepted their punishment philosophically. It was found that four months' imprisonment without the option of a fine had no terrors for these swindlers with a sporting instinct; and the Balata Committee was appointed to deal with what was undoubtedly a most serious situation, and to try and devise a remedy.

That committee was appointed fully two years ago, and presented its report in July, 1912. It is now February, 1914, and no action has been taken. In the interval the extraordinary difficulties to deal with which the Balata Committee was appointed have vanished. Many of the companies that were responsible for the extravagant competition in advances have disappeared, unable to bear the strain they themselves imposed. The companies that remain have come together and the local managers have agreed upon a scale of advances—already reported in the

INDIA RUBBER WORLD—that is fair and reasonable. The employers have themselves, by means of a little judicious combination, adjusted the situation which has again reverted to the normal.

Under these circumstances it is permissible to doubt the wisdom of the Government in allowing the virtual extinction of the Institute of Mines and Forests, a useful body, which has done good work in the past and will undoubtedly do good work in the future. The Balata Committee itself supplied the best defence of the institute in quoting the words of the secretary, Mr. James Winter, who, in the course of his evidence, said: "They inquire into wage disputes, sue for the laborers, pay off laborers at a commission of 1 per cent., selecting the laborers and seeing that they go, arresting absconders, giving information to employers," etc. The Balata Committee said: "We cannot conceive of any Government department performing these functions." They are very important functions and immensely useful to the employer. If the institute's principal source of revenue is taken from it, however, it is difficult to see how it can discharge these functions. The local press disapproves of the Government's proposals. It would appear that the policy proposed would be a serious mistake.

## BALATA EXPORTS FROM BRITISH GUIANA.

Georgetown advices state that the more favorable weather in 1913 led to increased exports of balata from British Guiana, as compared with the previous year. The figures are: 1912, 639,729 pounds; 1913, 1,172,501 pounds—the bulk of which is reported to have gone to the United Kingdom.

## NOTES FROM DUTCH GUIANA.

By a Resident Correspondent.

## THE BALATA PRODUCTION FOR 1913.

THE balata industry has made a tremendous advance during the year just closed, and yet it would appear that considerable further expansion is in sight. The number of new concessions taken out during last year and which have been prospected and proved rich in balata-producing trees predicts for the 1914 season an unprecedented crop.

The weather during the middle of last year, however, cannot be said to have been entirely satisfactory, from the fact that when tapping was at its height a period of dry weather lasting four or five weeks interfered considerably with the operations, which had to be suspended. Had this not taken place the production would have been nearly double the following figures. We take these figures from the Customs Department.

	Pounds.
Concession balata.....	2,449,957
Private lands balata.....	51,720
Total production for 1913.....	2,501,677
Total production for 1912.....	1,600,611

It is interesting to record that the quality of balata brought into town during the year has been much better than on previous occasions. The color and thinness of the sheets call forth commendation from all quarters. This, no doubt, has much to do with the present good prices, for buyers of the product had been complaining of the quality of the article and better prices are paid for good, clean, thin sheets. The collectors have practically refused to take over from the bleeders balata of inferior appearance, being unable to dispose of it, as local buyers refuse to accept quality that fails to come up to standard.

It has been estimated that over 5,000 men were engaged in actual bleeding operations during 1913, and this will also account for the great numbers who flocked into town to spend the Christmas holidays, when quite a bit of money changed hands. The bush-men, with few exceptions, have had a good time, and the

motor car owners, who have been kept busy day and night, would be pleased if Christmas came twice a year, for the balata men are their best customers. All the public houses did a good trade. The dry goods shops were not forgotten, for the bleeder under any circumstances must have a new outfit for Christmas.

It may be interesting to note that altho the prices and advances paid to the men were very much reduced from those of the past, in no case have we heard of serious objections or murmuring. This goes to prove that the balata men are not so unreasonable as many represent them.

We understand that new legislation for the industry will soon see light. It is to be hoped it may be so framed that both capital and labor will be properly safeguarded. The old regulations were certainly one-sided. There is much room for improvement in the balata business if the authorities will only do the right thing and foster the industry, which is at the present time the colony's main support, and, in fact, the only industry whereby the bulk of the population gains a livelihood.

The holidays are all over, and before this letter is published the men will be at their posts on the grants and many tons of balata have been produced. Every one is looking forward to a fine harvest for 1914, and should weather conditions be favorable their expectations cannot fail of realization.

It may be of interest to show what the exports of the colony are, in addition to the balata exports. The general export figures given below are taken from the official reports:

#### EXPORTS OF COLONIAL PRODUCTS DURING 1913.

Balata (pounds).....	2,609,050
Bananas, fresh (bunches).....	1,368,690
Bananas, preserved (pounds).....	1,162,434
Cocoa (pounds).....	1,162,434
Coffee (pounds).....	454,472
Hard wood (cubic feet).....	140,800
Letter wood (pounds).....	247,469
Hides (pounds).....	100,899
Rum (gallons).....	244,353
Sugar, V. P., finest crystal (pounds).....	21,688,676
Sugar, common process (pounds).....	1,869,608
Gold, native (grammes).....	856,768½

#### BALATA INDUSTRY OF SURINAM.

It is reported that the Surinam balata exploitation of the firm of Ter Laag & Co. has been taken over by a London company organized for that purpose.

The reported fusion of the Demerara Consolidated Rubber Co., the Balata Co. of Surinam and the Balata Co. of Guiana, has been contradicted, tho the possibility has been discussed in Surinam business circles of such an arrangement being ultimately effected.

#### CENTRAL AMERICAN NOTES.

Exports of rubber from the Bluefields districts of Nicaragua to the United States in 1912 amounted in value to \$207,748, in 1911 to \$214,960.

Crude rubber exports from Guatemala have materially decreased since 1910, when they reached a value of \$175,309, having amounted in 1911 to \$159,621, and in 1912 to only \$140,768. There is no local consumption of the article, much the larger part of which is gathered from wild trees.

Exports of chicle—collected chiefly in the northeastern portion of the Republic, in the forests of the Peten region—have, however, considerably increased, amounting in 1910 to 322,515 pounds valued at \$102,095, in 1911 to 478,172 pounds valued at \$150,902, and in 1912 to 870,925 pounds valued at \$274,852. Of the total exports almost 60 per cent. of the rubber and 56 per cent. of the chicle was consigned to the United States.

#### THE RUBBER CRISIS IN BOLIVIA.

A GOVERNMENT report recently published in Bolivia states that this is the second time since 1882 that an extracting industry has passed through a crisis. This time it is the rubber industry, which has got into great difficulties through the fall in price of that article. Since 1880 wild rubber trees have been tapped in Bolivia, attention being given only to current conditions, without any thought for the future.

The reason of the falling off in Bolivian rubber exports is obvious enough—the cause lies in the Eastern plantations. The plantations in the Middle and far East were first laid out in 1898, but it was ten years later, 1908, before any considerable quantity of plantation rubber came on the market. In that year the plantation product amounted to 2,120 tons which, however, the following year jumped to 12,800 tons and in 1912 increased to 28,500 tons; while in 1913 the product was certainly in excess of 40,000 tons. This plantation rubber has the tremendous advantage of low cost. It is collected from trees set a few feet apart, by laborers whose wages are low, and is transported over fine highways—and the whole enterprise backed by abundant capital.

It is estimated that the cost per pound of producing rubber in Bolivia equals about 29 pence, or 58 cents, while in Asia it represents about 11 pence, or 22 cents. Thus the cost of Asiatic rubber is 18 pence, or 36 cents, lower than that of Bolivian. Moreover, account must be taken of the loss in weight of Bolivian rubber caused by drying during the long transport.

The plantation coolie gets 6 pence (12 cents) a day, and in 20 days can gather about 220 pounds; while the Bolivian worker collects from 6 to 10 pounds a day, for which he receives 69 to 111 pence (\$1.38 to \$2.22) per pound.

As to the Bolivian rubber gatherer, the only thing in his favor is the quality of the product, which is further improved through the preparation by smoking, which gives it more nerve than when coagulation is produced by chemical means.

From the above explanations it will be seen that any material advance in the price of rubber is not to be looked for, so that efforts should be directed to lowering the Bolivian cost of production. Among the measures recommended are:—Construction of railways; laying out of rubber plantations; reduction of export tax; improvement of sanitary conditions in the rubber territory; instruction in various advantageous methods of tapping, and the obtaining of a thoroughly uniform product. Efforts are also to be made to induce the Indians of the elevated plateaus and the hard working population of Cochabamba, in the vicinity of the Chilian Provinces of Tarapaca and Antofagasta, to go to the rubber districts. Through giving land to the Bolivian families, the State can form colonies, not only for the rubber industry, but also for agriculture.

Conditions existing in Bolivia thus seem to correspond more or less with the situation in Brazil, and to have led to the suggestion of like remedies.

#### MEXICAN NOTES.

Reports from the State of Tabasco, Mexico, show that a number of the plantations in the southern part of that state and in northern Chiapas are gradually dying and that extensive areas are to be abandoned, having been found unsuited to the cultivation of rubber trees. Imports from this district into the United States amounted in 1911 to \$369,530, in 1912 to \$353,578.

Importations of motor cars into Panama average about a dozen a year, the number now licensed being in the neighborhood of 120—all gasoline and with two exceptions of American manufacture. Imports of cars from the United States amounted in 1912 to \$19,800, from France, \$809.

### MR. DA COSTA INVENTS A NEW COAGULATING MACHINE.

**M**R. J. SIMAO DA COSTA, of Rio de Janeiro, prominent for many years in the South American rubber trade because of his various inventions, expects soon to put a coagulating machine on the market which will be used in the rubber camps, coagulating latex on an endless mandrel in thin pellicles by the use of smoke. These pellicles or thin films of rubber are wound around



J. SIMAO DA COSTA.

a bobbin and made into a round ball, which is subjected to just enough pressure to expel the surplus moisture and to give it shape convenient for handling. Rubber coagulated in this way will enable the manufacturer to avoid the process of cutting, steeping in hot water and macerating, through which crude rubber now has to pass; and as the latex will be poured on the machine from the tree, much unnecessary transportation will be avoided. The inventor believes that he has devised a machine for doing mechanically and quickly what the *seringueiro* now does laboriously and slowly by hand.

#### PRODUCTION OF "FINE" RUBBER IN BRAZIL.

In a circular to the proprietors of *Seringaes*, the *Revista* (or Review) of the Commercial Association of Amazonas, urging the advantages of the smoking process, says:

"As this method tends to the production of a high quality, it is the only one adapted for our industry, provided it is carried out in such a manner as to assure the rubber being classed as 'fine.' Of the 42,000 tons annually produced by Amazonia, scarcely 17,000 is of fine rubber. It is this 17,000 tons which constitutes by its superior quality our capacity of resistance to the competition of the East. . . . It is for us to improve as much as possible our process of smoking and to increase our product of 'fine' rubber, avoiding as far as possible the production of the other less remunerative qualities."

#### EFFECTS OF BRAZILIAN RUBBER SLUMP.

In an official report Mr. G. B. Michell, British consul at Pará, comments upon the effects experienced in Northern Brazil on account of last year's slump in prices, the losses having extended to every line of business. He adds that for many years the people of the Amazon valley have sacrificed everything to the collection of rubber, having planted nothing, not even rubber trees. They have, moreover, neglected all cultivation of food stuffs. Every ounce of dairy produce is imported under a heavy import duty. Living is

almost insupportably dear through the manner in which the commonest items of a laborer's food are taxed.

#### PARÁ RUBBER AFLOAT.

An English return shows that on February 1, there were 1,050 tons of Pará rubber in transit to Europe, as compared with 1,750 tons at the corresponding date last year. The quantity afloat for America, at the date named, was, in 1914, 980 tons as against 1,350 tons in 1913. These figures are thought to indicate that supplies are being kept back at Pará, in the anticipation of better prices being obtainable later on.

#### SOUTH AMERICAN NOTES.

A commercial review of Eastern Brazil shows that rubber goods to the value of \$30,578 were imported into Bahia in 1912, rubber exports from that port for the same year amounting to 1,683 tons (valued at \$1,600,647), an increase of 19 tons over those of the preceding year. Of the rubber shipped from this market—the bulk of which is of the class known as *Manicoba*—about two-thirds is said to be purchased by American manufacturers, shipments to the United States in 1911 representing a value of \$1,004,068, and in 1912 \$1,030,084. Shipments from Pernambuco into the United States in 1911 and 1912 were valued at \$3,848 and \$5,954, respectively, from Maceio \$269 and \$166, and from Ceara in 1911—the only year for which figures are shown—\$351.

Rubber exports from the consular district of Ceiba, Venezuela, are reported as representing in 1911 a value of \$32,735, and in 1912 of \$51,309—the total for both years having been shipped into the United States.

The value of the rubber exported from Colombia in 1912 was \$736,427.

#### EASTERN NOTES.

A detailed statement has been prepared by the Director of the Agricultural and Commercial Service of Cochin China showing the status of rubber cultivation in that section, from which it appears that 168,000 of the 494,200 acres of land thought to be suited to *Hevea* rubber have been taken up, and that of this area 29,625 acres are actually under cultivation, the plantations having an aggregate of 3,800,000 trees, averaging in age 2½ years. None of the estates, with the exception of the Government Experiment station—known as the Belland Estate—are yet producing on a commercial scale, but some experts express the opinion that the soil and climate are not so well adapted to the *Hevea* as are those of the Straits and Ceylon, and that the same yield per tree cannot be obtained. Exports of rubber from Cochin China in 1912 amounted to 72 metric tons (158,731 pounds). On the basis of the planted area it is estimated that by 1920 the annual production will have reached between 3,500 and 4,000 tons.

The value of Samoa's rubber exports for 1912 was \$26,359, of which quantities to the value of \$19,810 were sent to Germany, \$5,343 to other European countries, and \$1,206 to Australia.

Siam exported, in the year 1912-13, 229,234 pounds of rubber—an advance of 221,393 pounds over the exports of the preceding twelve months.

The area of the colony known as the Straits Settlements is 1,599.7 square miles, consisting of a number of small islands in the archipelago and small tracts on the mainland of the Malay peninsula—embracing the Settlement of Singapore (including the Islands of Singapore, Labuan, Christmas Island and Cocos-Keeling Islands), the Settlement of Penang (including the Penang Island, Butterworth and Dindings), and the Settlement of Malacca. Of this area 1,038,000 acres are under cultivation, 94,263 acres being devoted to rubber growing. The exports of Straits produce for 1911 included 22,840 tons of "rubber, gutta percha and gutta jelutong"; for 1912, 21,726 tons. Of these exports the United States took in 1911 quantities valued at \$3,537,170; in 1912, \$6,138,997.



## RUBBER EXPORTS FROM NETHERLANDS INDIA.

ACCORDING to the following statistics, sent by United States Consul Bradstreet S. Rairden, of Batavia, last year's rubber exports of Netherlands India amounted to 4,130 tons, including Java 1,393, and other islands 2,737 tons. In the latter amount are included exports of 1,973 tons for East Sumatra. For comparison three years' statistics are quoted:

	Islands other than Java.			Java.			Total.		
	1910.	1911.	1912.	1910.	1911.	1912.	1910.	1911.	1912.
Belgium .....	110	68	91	13	15	63	123	83	154
Germany .....	191	56	15	...	...	...	191	56	15
Great Britain .....	17	22	108	8	99	493	25	121	601
Netherlands .....	45	63	260	39	181	805	84	244	1,065
Straits Settlements .....	2,330	1,674	2,250	3	25	3	2,333	1,699	2,253
Other countries .....	4	11	13	8	40	29	12	51	42
Total .....	2,697	1,894	2,737	71	360	1,393	2,768	2,254	4,130

The distribution of the several varieties of rubber is shown as follows:

Islands other than Java—*Ficus*, 482 tons; *Hevea*, 1,447 tons; other kinds, 808 tons. Total, 2,737 tons.

East Sumatra—*Ficus*, 467 tons; *Hevea*, 1,489 tons; other kinds, 17 tons. Total, 1,973 tons.

## THE INTERNATIONAL RUBBER CONGRESS AND EXHIBITION AT BATAVIA.

AN international rubber congress will be held at Batavia, Java, September, 1914. Owing to the large investments of foreign capital in the Netherlands East Indies, the holding of an international exhibition is distinctly appropriate. About five-sixths of the \$92,500,000 foreign investment is English, the bulk of the remainder being Belgian; while the American proportion is only \$6,000,000.

With the view of attracting further capital, a strong and influential local committee has been appointed, including a number of leading officials, bankers and merchants.

A committee for Malaya has also been formed with such representative members as Mr. L. Lewton-Brain, director of agriculture, Kuala Lumpur; Mr. I. H. Burkhill, director Botanical Gardens, Singapore, and Mr. R. W. Munro, chairman Planters' Association of Malaya.

The Netherlands committee includes a number of prominent men in Holland, while the Executive Council (on which devolves the work at the scene of action) has for president, Major-General J. G. H. De Voogt, Batavia, and for vice-president, Dr. W. R. Tromp de Haas, director of government rubber and gutta percha estates. Five committees second the efforts of the Executive Council.

The program is a dual one. A congress will be held from September 7 to 12, and the exhibition will last from September 8 to October 10. The congress will be divided into eight sections, comprising the whole range of the subject of rubber, upon which it will be addressed by leading authorities, and which will ultimately be discussed in joint sessions. In order that those interested may become acquainted with manufactured rubber goods, an exhibition of these will be held in addition to that of crude rubber. Machinery should arrive at the Exhibition grounds before July 10, while other exhibits should reach Batavia before August 1. The catalog is in preparation and will be printed, to the number of some ten thousand copies, in English and Dutch.

Various important demonstrations will take place during the exhibition; among others the Byrne patents, the property of the Rubber Curing Patents Syndicate, Kuala Lumpur, will be exhibited. The Botanical Gardens, Singapore, will also send an exhibit.

Applications for space should be made before April 1, to the Netherlands Committee, the president of which is Mr. G. Vissering, president of the Netherlands Bank, Amsterdam; or to Messrs.

Ruijgrok & Co., Haarlem (Holland). In view of the influential support it is receiving, marked success is predicted for this important event.

The Semarang (Java) Colonial Exhibition, which will take place about the same time, will not in any way conflict with the Batavia display, as the former will omit all reference to rubber.

Since writing the above general description of the proposed Batavia Exhibition, the "Guide to Visitors" has come to hand. It contains a folding plan of Batavia and a map of Java. A full list is also given of the various sub-committees and their constituent members, in Java and in Europe.

The Exhibition Jury will consist of five sections, distributed as follows:—Section 1, Botany, diseases, literature and scientific testing; Section 2, Cultivation, tapping and preparation; Section 3, Wild rubber, substitutes and gutta percha; Section 4, Economy, trade and statistics; Section 5, Vulcanized caoutchouc.

A series of excursions is being planned by the Official Tourist Bureau in connection with the exhibition. The "Guide to Visitors" contains the names of the individual experts intending to take part in the congress, with the subjects they propose to treat.

## THE COLONIAL EXPOSITION AT SEMARANG.

While the Batavia Exhibition is especially devoted to the rubber industry, the Colonial Exposition at Semarang is intended to illustrate the progress of Dutch commerce within the last century and particularly during the last ten years. Its special object is to commemorate the centenary of the return of the Netherlands Indies under Dutch rule in 1814, on the fall of the Napoleonic dynasty.

The exposition to some extent overlaps that of Batavia, as it opens August 13 and closes November 15.

In a neat booklet the administrative body has outlined the plan and objects of the display, which has the following divisions:—colonial government, agriculture, domestic industry, foreign industry, commerce and traffic.

An effort will be made to practically illustrate the advantage presented by the Dutch East Indies to European commerce. Java, Sumatra, Borneo and Celebes are the principal islands, and the growth of their united commerce is indicated by the following returns:

	Imports.	Exports.
1900.....	\$73,000,000	\$100,000,000
1910.....	130,000,000	180,000,000

Sugar and hides are the most important articles of export, while dry goods and flour are the largest imports. The Semarang exposition will not deal with rubber and will thus not conflict with that of Batavia, while the latter in handling only rubber leaves a clear field for its colleague. Machinery will form an attractive item for the planters of the island, and it is hoped that American manufacturers will avail themselves of the opportunities thus afforded them.

Mr. T. Greidanus, of 136 Water street, New York, is the representative of the Exposition for the United States.

## PROPOSED RUBBER GOODS FACTORY IN JAVA.

A new industry is said to be in course of establishment at Sourabaya, Java, in the form of a factory for the Dunlop Rubber Co., the well-known English tire firm. The factory is to be situated at Ketabang, near Sourabaya, in the vicinity of the Regent's residence, and is intended for the production of all classes of rubber goods, which have hitherto been imported. The company has been investigating the question of the climate and claims to have proved that the goods made in Java will fully compete with imported products and will well withstand the climatic influences to which they would be subjected in manufacture. It is further reported that the Dunlop company contemplates the erection of factories at Singapore and Penang.

## Some Rubber Planting Notes.

### COMPARISON OF CEYLON SMOKING PROCESSES.

At a recent meeting of the Committee on Agricultural Experiments, held at Peradeniya, specimens were exhibited of the products smoked respectively by the Wickham process at Heneratgoda and by that of the Colombo Commercial Co. at Peradeniya. A comparison of the results obtained by the two processes showed the following details:

	Wickham.	Commercial.
Fuel .....	30 pounds	78 pounds
Time .....	50 minutes	50 minutes
Latex .....	17 pounds	23½ pounds
Rubber .....	12 pounds	17 pounds

Both the specimens were pronounced to be of superior quality and are to be sent to the Rubber Exhibition to take place in London next June.

Much attention was attracted by blocks of rubber treated by the Byrne and other processes.

### CEYLON AND THE LONDON RUBBER EXHIBITION.

Mr. R. N. Lyne, Director of Agriculture of Ceylon, has been appointed commissioner for that island at the London Rubber Exhibition. According to a recent statement, the contributions towards the expense of the representation of Ceylon equaled \$3,866, of which \$2,833 had been subscribed in London and \$1,033 in Ceylon.

### PRIZES TO ESTATE SUPERINTENDENTS.

The Rubber Growers' Association announces the three following prizes in the form of silver cups, to be awarded at the forthcoming Rubber Exhibition, to estate superintendents or assistants: John McEwan's cup, for the best exhibit from whatever source; Thomas North Christie's cup, for the best exhibit produced in Ceylon, and E. L. Hamilton's cup, for the best specimen from the Federated Malay States or the Straits Settlements.

Only one cup will be given any prize winner. The cups are to be personal awards to the superintendents or estate assistants actually responsible for the successful exhibits. It is advisable for those intending to compete to send forward their names and have their responsibility definitely admitted. These prizes are intended to encourage those on whom devolves the actual task of producing the right grades of rubber.

### FEDERATED MALAY STATES RUBBER EXPORTS.

According to a cablegram from the government to the Malay States Information Agency, the exports of rubber from the Federated Malay States for the month of January amounted to 2,542 tons, as compared with 2,131 tons in January, 1913, and 2,616 tons in the month of December last.

Rubber exports from the Federated Malay States aggregated in 1911, 19,695,330 pounds; in 1912, 34,732,415 pounds, and last year, 1913, 52,557,409 pounds.

### THE "TEA-CUM-RUBBERS" BECOME "RUBBER-CUM-TEAS."

In the East there are certain plantations that are known as "Tea-Cum-Rubbers" which, being interpreted, means "tea with rubber." This designation is applied to plantations which were originally established solely for the production of tea and to which the production of rubber has been more recently added. But in some of these plantations the rubber has become so much more important as an item of revenue than tea that "tea-cum-rubber" as a designation is no longer accurate, and the proper form of the hyphenated description would be "rubber-cum-teas."

### COOLIES' WAGES IN MALAYA.

At a recent meeting of planters of the Malayan peninsula the question was discussed of a possible reduction of coolies' wages,

in harmony with the prevailing low prices of rubber. The proposal was rejected by the meeting, it being considered that with lower wages it would be impossible to obtain a sufficient supply of East Indian laborers.

### RUBBER SHAREHOLDERS' ASSOCIATION.

A circular was lately issued to shareholders of rubber companies inviting them to join the above association, which advocates the establishment of a joint selling agency. It announced that it started with a clean slate and an open mind as to how the questions of standardization and estate management could be most effectively dealt with.

### NEW BUILDING OF THE DELI TESTING STATION, MEDAN.

The new building of the Deli Testing Station at Medan, Sumatra, has been recently opened.

In the library there are a great number of practical works, while a reading room and photograph room supplement the other facilities of the new building. The last named room is intended for the development of photographs to be used by the testing station in its "communications."

### A CROP TO GO WITH RUBBER.

The Cotton Committee of the German Colonial Association has taken up the question of some staple crop to be interplanted with rubber. Amongst the varieties of tree suggested by Herr Otto Cantzler, director of the German Colonial Kapok Works, are Kapok, or tree cotton, and oil fruits. The former is being extensively used for upholstery and bedding. Kamerun and Togo are said to be particularly suited to the production of Kapok from Java seed.

### PROSPECTS OF INCREASED RUBBER CONSUMPTION.

In discussing the prospects of increased rubber consumption, the director of a large French company interested in the Congo calls attention to the fact that in the period of dear rubber manufacturers had become artists in the production of goods containing a minimum proportion of that material. Now that rubber is cheap they can afford to use as large a proportion as possible, thus wholly or partially eliminating the use of substitutes. Such a course is advocated with a view to the fulfilment of the guarantees upon which customers now insist.

### AFRICAN NOTES.

Crude rubber exports from Gabon, French Congo, advanced from 618,200 pounds in 1911 to 673,594 pounds in 1912—the entire quantity being destined for France.

Exports of rubber from the Gold Coast Colony, British West Africa, showed a marked decline in 1912, aggregating only 1,990,699 pounds, valued at \$820,867. Only three times in the last 23 years have they been less, whereas for several years during that period the quantity has been about double the 1912 figures. The 1911 exports amounted to 2,668,667 pounds, valued at \$1,067,610; those of 1910 to 3,223,265 pounds valued at \$1,877,282, and for 1909 to 2,764,190 pounds valued at \$1,282,871.

Statistics of the trade of Madagascar for 1911 and 1912 indicate prosperous conditions in that colony and show an increase in value of rubber exports from \$881,297 in 1911, to \$1,000,016 in 1912.

### NEW BUREAU OF ARBITRATION AT AMSTERDAM.

At the recent annual meeting of the Amsterdam Rubber Trade Association, the following were appointed members of the board of the Arbitration Bureau: Mr. J. F. de Beaufort, Mr. P. Van Leeuwen Boomkamp, Mr. J. N. Burger, Mr. P. Joosten, Mr. J. H. Rogge Hczn and Mr. Carel Wynand.

## Recent Patents Relating to Rubber.

## UNITED STATES OF AMERICA.

ISSUED JANUARY 6, 1914.

- N**O. 1,083,293. Pneumatic tire. J. F. Palmer, Riverside, Ill.  
 1,083,336. Hand stamp. T. L. Parker, Wibaux, Mont., assignor to H. S. Folger, Chicago, Ill.  
 1,083,344. Hat covering. W. C. Wetmore, Upper Montclair, N. J.  
 1,083,354. Insulating compound. T. A. Edison, Llewellyn Park, Orange, N. J.  
 1,083,396. Resilient wheel. W. A. Gehringer, Allentown, Pa.  
 1,083,440. Tire inflating apparatus. O. Ebert, Ironton, Ohio.  
 1,083,466. Erasing device for typewriters. H. I. Seddon, Portland, Ore.  
 1,083,470. Corset with a removable elastic abdominal belt. M. Towell, New York.  
 1,085,513. Vehicle wheel. C. F. Womeldorf, Washington, D. C.  
 1,083,528. Atomizer. C. Fellerer, Freising, Germany.  
 1,083,562. Non puncturable pneumatic tire. E. G. Rolff, Sacramento, Cal.  
 1,083,584. Air tube for pneumatic tires. W. R. Blowers, Toronto, Ontario, Canada.  
 1,083,632. Tire. Paul Richter, Berlin, Germany.  
 1,083,644. Non skidder. W. Wenom, Kirkwood, Mo.  
 1,083,670. Resilient tire for vehicle wheels. D. H. Donachy, Williamsport, Pa.  
 1,083,709. Vehicle wheel. G. F. Tadini, New York.  
 1,083,721. Flexible occlusive pessary. A. Asch, Hamburg, Germany.  
 1,083,755. Insulating material and process of making the same. J. C. Peabody, Boston, Mass., assignor to The Republic Rubber Co.  
 1,083,798. Automobile tire. C. J. Butts, Boston, Mass.  
 1,083,843. Massage device. A. F. Luzzi, Waco, Tex.  
 1,083,847. System for inflating pneumatic tires. C. P. McDowell, Winlock, and R. H. Easter, Elma, Wash.  
 1,083,864. Resilient vehicle wheel. P. H. Shailer, Sydney, New South Wales, Australia.  
 1,083,869. Non skid tire shoe. H. Strongson, New York.  
 1,083,873. Water bag. F. W. Burch, Pueblo, Col.  
 1,083,875. Method of fixing rubber or other tires on wheels. T. K. Clark, Durban, Natal, South Africa.  
 1,083,886. Shoe attachment for automobile wheels. J. W. Marston, Jr., Mobile, Ala.  
 1,083,892. Resilient wheel for road vehicles. A. Ma De Palacio y Garcia and S. Rubio, Alfafar, Spain.

## Designs.

- 45,107. Tire tread. J. R. Gammeter, assignor to The B. F. Goodrich Co.—both of Akron, Ohio.  
 45,122. Water cushion. C. W. Meinecke, Jersey City, N. J., assignor to Meinecke & Co., New York.  
 45,124. Bathing cap. R. Parker, New York.  
 45,128. Nursing bottle. W. Schnippa, Schwepnitz, Saxony, Germany.  
 45,130. Rubber mat binding. F. H. Timke, assignor to J. Kroder and H. Ruebel Co.—all of New York.

## Trade Marks.

- 73,144. L. C. Chase & Co., Boston, Mass. The word *Drednaut*. For textile fabric coated with rubber or waterproof surface clothing.  
 73,195. The Canfield Rubber Co., Bridgeport, Conn. The word *Canfield*. For dress shields.

ISSUED JANUARY 13, 1914.

- 1,083,976. Vehicle wheel. A. R. Wylie and J. G. Wright, Big Spring, Texas.  
 1,084,003. Garment suspenders. H. J. Gaisman, New York.  
 1,084,025. Tire. J. McNamee, Amsterdam, N. Y.  
 1,084,029. Anesthetic administering apparatus. J. S. Pyle, Toledo, Ohio.  
 1,084,050. Rim for vehicle wheels. H. K. Wheelock, Akron, Ohio.  
 1,084,055. Resilient wheel. T. Yochum, Columbus, Ohio.  
 1,084,056. Spring tire. H. J. Augustine, Independence, Kan.  
 1,084,094. Fountain spray nozzle. J. Loosen, assignor to M. Peel—both of Oakland, Cal.  
 1,084,106. Garment for bathing. W. W. Pelton, Chicago, Ill.  
 1,084,144. Automobile wheel. E. G. Glaser, North Dover, Ohio.  
 1,084,178. Massage vibrator. G. Svendsen, Tunc, N. Y.  
 1,084,182. Inhaler. G. von Ach, Newark, N. J.  
 1,084,197. Ankle support and protector. H. J. Collis, Taunton, Mass.  
 1,085,264. A waterproofed resilient instep arch support. P. R. French, Andover, Mass.  
 1,084,299. Vehicle wheel. A. Saunier, San Francisco, Cal.  
 1,084,302. Vehicle wheel. D. T. Timberlake, St. Louis, Mo.  
 1,084,303. Spring vehicle wheel. D. T. Timberlake, St. Louis, Mo.  
 1,084,304. Inhaling device. B. C. Vaughn, assignor to Sarah C. Vaughn—both of Pittsburgh, Pa.  
 1,094,333. Caoutchouc substance and process of making same. F. Hofmann and C. Coutelle, assignors to Farbenfabriken vorm. F. Bayer & Co.—all of Elberfeld, Germany.  
 1,084,334. Vulcanized caoutchouc-like substance. F. Hofmann and C. Coutelle, assignors to Farbenfabriken vorm. F. Bayer & Co.—all of Elberfeld, Germany.

- 1,084,335. Vulcanized caoutchouc-like substance. F. Hofmann, C. Coutelle, K. Delbruck and K. Meisenburg, assignors to Farbenfabriken vorm. F. Bayer & Co.—all of Elberfeld, Germany.  
 1,084,336. Vulcanized caoutchouc-like substance. F. Hofmann, C. Coutelle, K. Delbruck and K. Meisenburg, assignors to Farbenfabriken vorm. F. Bayer & Co.—all of Elberfeld, Germany.  
 1,084,337. Vulcanized caoutchouc-like substance. F. Hofmann and C. Coutelle, assignors to Farbenfabriken vorm. F. Bayer & Co.—all of Elberfeld, Germany.  
 1,084,338. Vulcanized caoutchouc-like substance. F. Hofmann, C. Coutelle, K. Delbruck and K. Meisenburg, assignors to Farbenfabriken vorm. F. Bayer & Co.—all of Elberfeld, Germany.  
 1,084,409. Method of constructing tires. B. H. Divine, Utica, N. Y.  
 1,084,421. Spring wheel. A. Gage, Long Lane, Mo.  
 1,084,434. Tire protector. F. Holik, Prague, Okla.  
 1,084,470. Pneumatic puncture proof tire. F. Newbauer, Valley City, N. D.  
 1,084,515. Spring wheel. C. F. Willner, Kansas City, Mo.

## Design.

- 45,148. Vehicle tire. G. W. Daum, Jeannette, Pa.

## Trade Marks.

- 74,379. Lambertville Rubber Co., Lambertville, N. J. The word *Lamco*. For rubber boots and shoes.  
 74,531. H. P. Rindskopf, New York. The word *Bunny*. Diapers and infants' pants of waterproof fabric of cotton and silk.

ISSUED JANUARY 20, 1914.

- 1,084,620. Vehicle wheel. T. L. Forrester, Denver, Col.  
 1,084,648. Resilient vehicle wheel. C. J. Malings, Easthampton, Mass.  
 1,084,664. Spring wheel. G. H. Schanck, Libertyville, Ill.  
 1,084,731. Resilient tire. D. H. Deery, Bridgeport, Conn.  
 1,084,746. Rubber wheels for finishing heels of boots or shoes. C. A. Matson, Lynn, Mass.  
 1,084,840. Pot for collecting resin. J. M. A. Brun, Salles, and G. M. Dauris, Mios, France.  
 1,084,842. Lawn sprinkler. J. F. Bustin, Pasadena, Cal.  
 1,084,864. Tire. C. M. Lloyd, London, England.  
 1,084,866. Solid tire for vehicles and the like. D. Maggiora, London, England.  
 1,084,882. Spring wheel. G. J. and H. C. Garrett, Richmond, Ind.  
 1,084,895. Pneumatic tire casing repair device. J. N. Newsom, St. Louis, Mo.  
 1,084,916. A cushion for billiard tables comprising a rubber strip. M. J. Whelan, Muskegon, Mich., assignor to Brunswick-Balke-Coller Co., of Delaware.  
 1,084,957. Antislipping device for shoes comprising elastic strip and suction cups. H. J. Otis, Walton, Ore.  
 1,085,009. Diving apparatus for submarine work. M. Bemina and L. Durand, Palermo, Italy.  
 1,085,010. Shoe. R. D. S. Bennett, Springfield, Mo.  
 1,085,019. Hose supporter. A. H. Coln, Larchmont, N. Y.  
 1,085,084. Garden hose support. F. W. Haines, East Malvern, Melbourne, Australia.

## Designs.

- 45,166. Tire casing. L. P. Destribats, Trenton, N. J.  
 45,167. Elastic webbing. F. H. Frissell, assignor to The Russell Mfg. Co., Middletown, Conn.  
 45,168. Elastic webbing. F. H. Frissell, assignor to The Russell Mfg. Co., Middletown, Conn.

## Trade Marks.

- 72,730. The Spirella Co., Meadville, Pa. Illustration of a collar supporter. Surgical bandages, elastic or surgical stockings, etc.  
 73,864. G. Borgfeldt & Co., New York. The word *Kempie*. Rubber balls, etc.  
 74,309. Marshall Field & Co., Chicago, Ill. The word *Cameo* in oval. For garment shields.

ISSUED JANUARY 27, 1914.

- 1,085,102. Insulating compound. L. E. Barringer, Schenectady, N. Y., assignor to General Electric Co., of New York.  
 1,085,120. Hose nozzle. H. Gibbs, assignor to W. D. Allen Mfg. Co.—both of Chicago, Ill.  
 1,085,130. Life saving suit. J. Juhasz, Unity Station, Pa.  
 1,085,154. Mud shedder for vehicle wheels. H. G. Newsom, Boyce, Tex.  
 1,085,312. Overshoe for horses, comprising a rubber pad. R. Whitaker, assignor to The Emergency Horseshoe Co.—both of New Brunswick, N. J.  
 1,085,324. Demountable rim. J. Craig, Bedford, England.  
 1,085,376. Tire. F. S. Byington, Los Angeles, Cal.  
 1,085,408. Automobile tire. W. E. Delehanty, New York.  
 1,085,435. Non puncturable resilient wheel. E. Keup, San Francisco, Cal.  
 1,085,442. Resilient wheel. F. J. Krodell, Chicago, Ill.  
 1,085,513. Vehicle wheel. G. R. Williams, Little Rock, Ark.  
 1,085,545. Tire. H. Cooney and O. E. Wiltse, Marion, Ind.

## Trade Marks.

- 68,857. Thermoid Rubber Co., Hamilton township, Mercer county, N. J. The words *Thermoid de Luxe* and *Thermoid Rubber Co.*, Trenton, N. J.



- ton, N. J., in oval. For rubber tires and inner tubes for automobiles.
- 72,978. Mulconroy Co., Philadelphia, Pa. The word *Mulconroy*. For flexible armor hose, packing, pump valves, etc.
- 74,152. The Canfield Rubber Co., Bridgeport, Conn. The word *Canfield* in dress shield. For dress shields.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

### GREAT BRITAIN AND IRELAND.

#### PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1912.

\*Denotes Patents for American Inventions.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JANUARY 7, 1914.]

- 21,081 (1912). Waterproofing leather by treatment with a mixture of rubber solution, etc. A. McLennan, The Tannery, Ross, Herefordshire.
- \*21,089 (1912). Pictorial toy embodying a diaphragm of sheet rubber. F. W. Fiedel, 1211 Geneva street, Racine, Wis., U. S. A.
- \*21,090 (1912). Printing apparatus with rubber padded frame support and rubber bumpers. F. H. Knapp, Westminster, Md., U. S. A.
- 21,101 (1912). Motor coats containing immovable hollow shock-absorbing bodies such as rubber balls. M. Stein, 3 Servitenplatz, Budapest.
- \*21,162 (1912). A rubber insulating covering for the outer end of an umbrella rod. I. H. Weinberg, 39 White street; G. Schreiner, 11 Kenilworth Place, Brooklyn, and F. Buetzer, 33 Greene street—all of New York, U. S. A.
- \*21,173 (1912). Caoutchouc substances; dienes. D. Spence, A. P. Clark, and Diamond Rubber Co., Akron, Ohio, U. S. A.
- \*21,183 (1912). Tread band for solid or pneumatic tires. J. J. Beidler, 1777 Broadway, New York, U. S. A.
- 21,227 (1912). Spring wheel with continuous outer rigid rim and helical springs. W. B. White, 16 Haverholt, Colne, Lancashire.
- 21,252 (1912). Elastic means for restoring a cap to its normal size after stretching. M. Doniger, Ltd., Carnarvon street Works, Cheetham, and H. Sunderland, 2 Fort Road, Sedgley Park—both in Manchester.
- 21,272 (1912). Spring wheel with flexible cover. M. S. de Carmona, 22 Donato Guerra, Mexico.
- 21,295 (1912). Life belt. A. Leinveber, 35 Kaiserstrasse, Chemnitz, Saxony.
- 21,312 (1912). Jackets and covers for wheel tires. G. Ashford and T. H. Greves, 8 Newhall Hill, Birmingham.
- 21,321 (1912). Fountain pen fillers. J. A. Legh, Flower House, Southend, Catford, London.
- 21,379 (1912). Tread bands, projections and surfaces for wheel tires. I. Egerjesy, J. Bajusz and A. Baranyi, 40 Hunyadi ut, Temesvar, Hungary.
- 21,460 (1912). Surgical ice caps. A. Golka, Rosdizin-Schoppinitz, near Kattowitz, Upper Silesia, Germany.
- 21,538 (1912). Inflatable rubber bandage. E. Nitardy, 13 Potsdamerstrasse, Berlin.
- 21,551 (1912). Tire attachments to rims. C. T. B. Sangster, Da'e Road, Bournbrook, near Birmingham.
- \*21,618 (1912). Work bed of a leather dressing machine formed with a rubber layer. H. A. Holder, Locust street, Lynnfield, Mass., U. S. A.
- [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JANUARY 14, 1914.]
- 13,352 (1912). Air tubes and chambers; block tires. F. Walton, 114 Holborn, London.
- 21,696 (1912). Life belts, etc. F. Christiansen, 20 Eckernforder Allee, Kiel, Germany.
- 21,697 (1912). Waterproofing fabrics, etc. H. Oliver, 26 Court Lane, Dulwich Village, and G. T. Oliver, 8 Somers Road, Walthamstow—both in London.
- \*21,736 (1912). Vehicle wheels; springs. E. F. Krell, 423 Third avenue, Detroit, Mich., U. S. A.
- 21,747 (1912). Tobacco pouches. S. E. Page, 28 New Bridge street, London.
- 21,757 (1912). Flexible tiles of rubber, linoleum, etc. E. T. Bates, 1415 Irving street, Washington, U. S. A.
- 21,819 (1912). An elastic device to prevent half-length sleeves of blouses from riding up when the jacket is on. R. Bauer, 1 Matthiasplatz, Breslau, Germany.
- 21,824 (1912). Tire consisting of a coiled spring enclosed in a cover such as is used in a pneumatic tire. J. Morris, 6 Windsor street, Uplands, Swansea.
- 21,828 (1912). Firemen's and like protective dress with rubber nose piece. Sir T. D. Gimlette, Royal Hospital, Haslar, and F. A. Capps, H. M. Submarine Depot, Fort Blockhouse, Gosport—both in Hampshire.
- 21,829 (1912). Process for shaping hats. F. Scofield, 8 Rue de la Michodiere, Paris.
- 21,834 (1912). Artificial teeth. K. Schon, 4 Kaiser Wilhelmstrasse, Hamburg, Germany.
- 21,839 (1912). Rubber cigar wrapper. F. Frandsen, Charlottenlund, near Copenhagen.
- 21,873 (1912). Machines for affixing sealing labels to bottles comprising a rubber covered plate. P. J. Purdy, 11 Whitecross street, London.
- 21,891 (1912). Tire attachments to rims. C. Challiner, The Glen, Anson Road, Victoria Park, Manchester.
- 21,919 (1912). "Energised" rubber tires. D. Maggiora, 17 Gracechurch street, London.

- 21,926 (1912). Bottle stoppers. A. M. Hurst, 15 Tunley Road, Upper Tooting, London.
- 22,003 (1912). Jackets and covers for pneumatic tires. J. W. H. Dew and Azulay Syndicate, 8 Laurence Pountney Hill, Cannon street, London.
- 22,004 (1912). Driving belts of unspun fibre and rubber. J. W. H. Dew and Azulay Syndicate, 8 Laurence Pountney Hill, Cannon street, London.
- 22,035 (1912). Isoprene and intermediate products. J. Y. Johnson, 47 Lincoln's Inn Fields, London.
- 22,067 (1912). Imitation velure hats consisting of felt and plush or similar material with a layer of rubber interposed. C. Clermont, 66 Hyde Road, Denton, Manchester.
- 22,103 (1912). Corset provided with elastic waist part. J. Gebauer, 10 Konigstrasse, Neisse, Germany.
- 22,142 (1912). Valves and valve stems attaching rubber washers. F. H. Hall, Gannaway Gate, Norton Lindsey, Warwickshire.
- 22,174 (1912). Sou-westers or other head gear and leggings. A. Moore, "Tir Mo Croide" Bangor co., Down.
- 22,178 (1912). Rubber studs for soles and heels of boots. A. E. Walkden, 121 Brighton street, Seacombe, Wallasey, Cheshire.
- 22,179 (1912). Golf ball. W. T. Hill, Greenhill, Rathern Road, Withington, Manchester, and R. Milne, Arnold avenue, Bishopbriggs, Lanarkshire.
- 22,206 (1912). Detachable rim attachments to wheels. O. Neumann, 1 Dragonerstrasse, and K. Modrow, 17 Fusilierstrasse—both in Hanover, Germany.
- 22,215 (1912). A protective insertion vulcanized in the rubber, and extending from edge to edge of the cover of a pneumatic tire. S. E. Gynyon, 115 Cannon street, London.
- 22,229 (1912). Buttons of vulcanite, etc. W. Williams, 33 Gifford Road, Deal, Kent.
- 22,248 (1912). Mercerizing apparatus comprising a number of elastic surfaced nip or tension rollers. W. T. Craven, 21 Brook street, Ilkley; L. J. Craven, 28 Simpson Grove, Armley, Leeds; C. H. Young, Hill Crest, Halifax Road, Brighouse; F. H. Cliffe, 15 Waverley Terrace, Hipperholme, and W. S. Cliffe, 31 Cromwell street, Halifax—all in Yorkshire.
- 22,255 (1912). India rubber, etc. H. Colloseus, 27 Regensburgerstrasse, Berlin.
- 22,266 (1912). Shoe and like soles of fibrous material mixed with rubber, gutta percha, balata or the like. T. C. Redfern, 24 Woodend Lane, Hyde, Cheshire.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JANUARY 21, 1914.]

- \*22,283 (1912). Parachute. J. H. Kendig, 922 Frick Bldg., Pittsburgh, Pa., U. S. A.
- 22,317 (1912). Driving belt comprising portion of rubber and a core of intertwined wire coils embedded in rubber, balata or the like. J. P. Higgins, 53 Carlyle Road, Edgbaston, Birmingham.
- 22,329 (1912). Spring wheels with continuous outer rigid ring, helical springs, and rubber ring and like cushions. J. S. Jones, 43 Aberdare Gardens, West Hampstead, London.
- 22,355 (1912). Electric cables. C. J. Beaber Rangemoor, Crescent Road, Hale, and E. A. Claremont, Broom Cottage, High Legh—both in Cheshire.
- 22,368 (1912). Hat fasteners with elastic strip and loop. W. B. Chew, 35 Pentre street, and E. J. Freeman, Orchard View, Cwmgrach—both in Clyn Neath, Glamorganshire.
- 22,436 (1912). Artificial threads of viscose solutions. G. B. Ellis, 70 Chancery Lane, London.
- 22,503 (1912). Compound fabrics for balloons, collapsible boats, etc. H. Oliver, 26 Court Lane, Dulwich Village, and G. T. Oliver, 11 Somers Road, Walthamstow—both in London.
- 22,551 (1912). Pad comprising elastic strip, etc., to prevent crutch from rubbing against limb. M. Bouvier, 190 Boulevard Haussmann, Paris.
- 22,628 (1912). Aeroplanes; woven fabrics. A. J. A. Deperdussin, 19 Rue des Entrepreneurs, Paris.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JANUARY 28, 1914.]

- 22,684 (1912). Rubber soles for boots, etc. A. Johnston and North British Rubber Co., Castle Mills, Fountainbridge, Edinburgh.
- 22,687 (1912). Aeronautics. T. Watsoy, 49 Pyatt street, and G. Wigley, Warner Gate—both in Nottingham.
- 22,724 (1912). Parachutes. W. A. MacKay, Commercial street, North Sydney, Nova Scotia, Canada.
- 22,757 (1912). Cores, etc., for wheel tires—from printers' roller composition with a tubular covering of fabric or canvas. W. E. Evans, 27 Chancery Lane, London.
- 22,768 (1912). A vulcanizing pan or other vessel provided with air tight lid. J. W. Comersall and Irwell & Eastern Rubber Co., Ordsall Lane, Salford, Manchester.
- 22,801 (1912). A detachable rim for vehicle wheels. R. W. Ashley and F. Oberkirch, 47 W. 34th street, New York.
- \*22,819 (1912). Spring wheels with pneumatic cushion. I. H. Babcock, De Ruyter, New York, U. S. A.
- \*22,864 (1912). A device for supplying air to firemen. J. D. Halloran, 56 Baxter avenue, New York, U. S. A.
- \*22,930 (1912). A combined brush, curry comb and vacuum cleaning device. J. H. Sievin, 211 W. 102d street, New York.
- 23,048 (1912). Wheel tire, jackets and covers. W. G. Kohler, 34 Schierkerstrasse, Bremen, Germany.
- 23,062 (1912). Dental gag with elastic head band. F. B. Eggler, Coppen, Wurttemberg, Germany.
- 23,094 (1912). Spring wheels with continuous rigid ring and pneumatic rubber ring. L. Hardaker, 106 Constitution Road, Petersham, near Sydney, Australia.

- 23,138 (1912). Spring wheels with continuous outer rigid ring and pneumatic cushions. E. Jones, "The Poplars," Greenfield, near Holywell, Flintshire, and W. S. Williams, 17 Parkfield Road, Liverpool.

### THE FRENCH REPUBLIC.

#### PATENTS ISSUED (With Dates of Application).

- 460,360 (July 12, 1913). P. E. Droop. Cover of pneumatic tire, with lining of endless meshed fabric, made in form of a sleeve by circular loom.
- 460,430 (July 16). L-de Mello Marques. Elastic tire for vehicle wheels.
- 460,458 (July 17). W. Porter. Improvements in hollow elastic tires for vehicle wheels.
- 460,506 (July 18). Broun Perfection Tube Co. Improvements in air chambers for pneumatic tires and process of their manufacture.
- 460,532 (July 19). Zieger & Wiegand. Process of making hollow bodies in rubber having the transparency of glass.
- 460,546 (October 7, 1912). De Postis. Mud guard.
- 460,649 (July 22, 1913). E. André. Improvements in pneumatic vehicle wheels.
- 460,689 (July 23). F. Ripeau. Improvements in manufacture of crude rubber.
- 460,763 (July 26). R. J. Henderson. Improvements in air chambers for pneumatic tires.
- 460,780 (July 26). V. Thomas. Process of vulcanization of rubber objects and similar articles.
- 460,836 (July 28). W. G. Chipley. Improvements in rims and elastic tires.
- 460,872 (July 30). W. Kops. Elastic fabric.
- 460,894 (July 30). C. Lugagne. Mud guard.
- 460,943 (July 2). Société Anonyme des Combustibles Industriels. Process for manufacture of a plastic and rubber-like substance specially intended for application to roads or for other purposes.
- 460,961 (July 12). E. Breuer. Air chamber for tires and other purposes.
- 461,093 (August 4). E. Kempter. Process and appliance for the extraction of gum from parts of vegetable substances.
- 461,116 (August 5). H. B. Clayson. Improvements in elastic vehicle tires.
- 461,153 (August 6). C. P. E. Robert. Improvements in manufacture of rubber nipples.
- 461,157 (August 6). E. Aimond. Wheel tire.
- 461,232 (August 9). A. Heinemann. Improvements in the manufacture of synthetic rubber.
- 461,237 (August 9). G. T. Vallee. Insulating, shock-absorbing and anti-vibration composition and its applications.
- 461,247 (August 9). M. Dechamps. Interchangeable or rotary perforated rubber wheel tire.
- 461,258 (June 24). P. P. Despina. Vulcanizer.
- 461,299 (August 2). A. de Laigne. Wheel tire.
- 461,322 (August 11). A. E. Jourfier. Protective appliance for pneumatic or other tires.
- 461,423 (August 14). A. C. Couvreur. Mud guard for vehicle wheels.

[NOTE.—Printed copies of specifications of French patents can be obtained from R. Bobet, Ingenieur-Conseil, 16 avenue de Villiers, Paris, at 50 cents each postpaid.]

### THE GERMAN EMPIRE.

#### PATENTS ISSUED (With Dates of Validity).

- 269,240, Class 120 (February 27, 1912). Process for introduction into rubber or rubber-like substances of suitable carbo-hydrates. Dr. Kurt Gottlob, Elberfeld.
- 269,444, Class 39a (May 16, 1911). Process and appliances for vulcanizing of rubber objects of unequal thickness. Thomas Gare, New Brighton, Cheshire, England.
- 269,512, Class 39b (February 26, 1913). Process for accelerating vulcanization of natural or artificial rubber. Farbenfabriken vorm. Friedr. Bayer & Co., Leverkusen.
- 269,533, Class 63e (March 28, 1912). Elastic tire with a covering of enclosed spiral springs crossing each other. Gustav Schaurer, Hanau-on-Main.
- 269,907, Class 47f (March 27, 1913). Closing of rubber and other hose by lip valve. Dr. Paul Enke, Plauen.
- 269,908, Class 47f (May 27, 1913). Double walled suction hose. August Hey, Strassburg.
- 270,272, Class 39b (May 3, 1912). Production of a plastic mass for molding. Hollandsche Proteïne Maatschappij, Amsterdam.
- 270,314, Class 39b (February 21, 1911). Process for production of tightly fastening covers. Viscose Development Co., Limited, Pembroke.

### THE KINGDOM OF BELGIUM.

#### PATENTS PUBLISHED.

- 261,486 (December 12, 1913). Manufacture of a substitute for celluloid. A. R. Von Starza Szolayoki, Harburger Strasse 12, Vienna.
- 261,396 (December 12). Process of making rubber substitute. C. Lambert, Berlin-Wilmersdorf.
- 261,653 (December 12). Appliance for drying rubber latex in sheets or slabs. C. Scherf, Chaussée de Tervueren 41, Brussels.
- 261,724 (December 12). Process for accelerating vulcanization of natural or artificial rubber. Farbenfabriken vorm. Friedr. Bayer & Co., Leverkusen and Elberfeld.
- 261,870 (January 1, 1914). Process for manufacture of product resembling vulcanized rubber. Farbenfabriken vorm. Friedr. Bayer & Co., Elberfeld.

### THE VOORHEES COMPANY'S INTERESTING CATALOG.

The new and attractive booklet issued by the Voorhees Rubber Manufacturing Co. contains a fund of information interesting to its old customers, as well as to those who contemplate taking up the line.

Starting with rubber belting, the reader is shown the 230,000-pound machine which in operation produces this article from the highest grade of cotton duck, the special merits of each brand being commented upon. The text is supplemented by illustrations of the "Ultimate" and other conveyor belts. Next in order come conducting and garden hose, in which this concern specializes, followed by steam hose, air drill and pneumatic tool hose and other hose specialties. Full details are then given of the "2V" (Voorhees Vacuum) hose sold under that trade mark. Underwriters' rubber-lined cotton and linen hose and the various other makes of fire hose are then fully dealt with.

Sheet packing and tubing follow, including the well-known "Nubian" packing, which has set such a high standard of excellence. After illustrating various specialties, the catalog winds up with rubber mats and carpeting, its seventy items fully covering the range of the company's production.

With a view to showing the extent and variety of the Voorhees products, the annexed cut represents one of its large hawse blocks,



HAWSE BLOCK.

as used in the Navy for plugging the hawse holes through which the chain cables pass, in order to prevent the sea-wash. These plugs weigh about 350 pounds each, their dimensions being: depth, 19¼ inches; diameter at top, 19¼ inches; diameter at bottom, 17½ inches. The perfect equipment of the Voorhees factory is fully demonstrated in this interesting booklet of 92 pages, which contains many effective illustrations.

### SUPERINTENDENCIA DA DEFESA DA BORRACHA, RIO DE JANEIRO.

The numbers of the Bulletin of the above bureau up to October 31 are to hand. Among the most interesting articles in the past issues are: "The Cultivation of Maniçoba" and "Sources of Rubber," by Dr. O. Labroy; "Permeability of Vulcanized Rubber," "Machines for the Rubber Industry," "The Situation of the Rubber Industry," by Dr. José Bonifaccio; "The World's Rubber Production," Dr. O. Labroy; "Planting of Jequié Maniçoba" and "The Sale of Rubber," by T. C. Deutz, and "Maniçoba in Hawaii." The October number (the last received) has a number of interesting statistical returns, showing the position of Brazilian rubber up to August 31.

Much care has evidently been given to the preparation of the information contained in this bulletin.

A special feature is the reproduction of the general catalog of the recent exhibition at Rio de Janeiro, containing references to the sources of the various samples exhibited, about 2,000 in number. The bulletin thus forms a handbook to the rubber industry of Brazil.

## Review of the Crude Rubber Market.

**F**EBRUARY has practically displayed little alteration in the London price of fine Pará, which stood on January 23 at 3s. 2d. (77.03 cents), and remained during the month following in close proximity to that figure. The highest point reached was 3s. 2½d. (78.04 cents) on February 9, and the lowest 3s. 0¾d. (74.50 cents) on the 19th. At time of writing this review it stands at 3s. 0¾d. (74.50 cents). As the extreme fluctuation was 1¾d. (3½ cents) per pound, the opposing forces were thus pretty evenly balanced. A short interest has been spoken of as imparting strength to the market. Demand has been largely confined to immediate requirements.

Plantation rubber stood on January 23 at 2s. 4¾d. (58.28 cents), and on February 2 at 2s. 5¾d. (60.31 cents). It varied during February between the last-named price and 2s. 7d. (62.84 cents). The highest point reached was 2s. 7d. (62.84 cents) on the 10th, and the lowest, 2s. 5d. (58.79 cents) on the 20th.

The plantation rubber auctions of January 27 and 28 included 971 tons, of which 737 came from the Straits and 234 from Ceylon. Standard crepe sold at 2d. (4 cents) to 2½d. (5 cents) above the prices of the previous fortnightly sales. This upward movement formed the basis of the advances subsequently established by the February continental auctions. It had been anticipated that the quantity offered would reach 1,500 tons, but a leading American manufacturer is said to have purchased the difference of some 500 tons.

At the auction of February 10, the entire quantity offered, 1,102 tons, was sold, with an average improvement of 2d. (4 cents) per pound.

London statistics for January of Eastern plantation rubber show the following results:

	Last year.	This year.
Stock, January 1, 1914.....tons	2,016	3,310
Arrivals, January .....	2,865	3,860
Total .....	4,881	7,170
Deliveries, January.....	2,184	3,360
Stock, January 1.....	2,697	3,810

The large increase in deliveries this year denotes activity of trade in plantation rubber.

The continental sales of January and February have been signalized by marked animation. At the Antwerp inscription sale of January 21, out of 422 tons Congo, 345 tons were placed, at an advance of 10 per cent. The whole of the 220 tons plantation offered was sold with an average rise of about 5½ per cent. It is a noteworthy feature that this quantity forms a record for the monthly Antwerp sales. For February 19 a sale had been announced of about 212 tons Congo and 80 tons plantation. On January 21 the stock of rubber in Antwerp was 550 tons, against 282 tons at corresponding period of 1913.

While an improvement had been anticipated, the results of the Amsterdam sale of February 5 surpassed expectations. The entire quantity offered was sold, consisting of 89 tons *Hevea* and about 5 tons *Ficus*. Active demand from America and Europe and the covering of the short interest were understood to have been the causes of the advance of about 10 to 12 per cent. The next sale is announced for March 5.

Stock, February 1, about 166 tons against 121 tons on January 1.

On February 6 the Rotterdam sale of 65 tons displayed marked activity, the whole of the offering, 45 tons Congo and 20 tons

plantation, being sold about 10 per cent. above valuation. The next sale has been fixed for March 6.

The Havre sale of January 21 included about 51 tons, principally Congo, of which 33 tons were sold with an average advance of 10 per cent.

Large American orders for crude rubber have contributed to the marked animation of the Hamburg market. By the latest accounts, opinions were divided as to the future, the idea having gained ground that the level of prices during the last five months of 1913 had been unreasonably low. This view of the situation would justify the expectation of a gradual return to a point between the extreme levels of January and October, 1913.

### NEW YORK QUOTATIONS.

Following are the quotations at New York one year ago, one month ago, and February 27, the current date:

PARA.	March 1, '13.	Feb. 1, '14.	Feb. 27, '14.
Islands, fine, new.....	91 @ 92	64 @ 65	70 @ 71
Islands, fine, old.....			
Upriver, fine, new.....	96 @ 97	75 @ 76	75 @ 76
Upriver, fine, old.....		77 @ 80	
Islands, coarse, new....	46½ @ 47	28 @ 29	32 @
Islands, coarse, old....			
Upriver, coarse, new....	71 @ 72	44 @ 45	46 @ 47
Upriver, coarse, old....			
Cameté .....	48 @ 49	34 @ 35	36 @
Caucho (Peruvian) ball	71½ @ 72½	46 @ 47	47½ @ 48
Caucho (Peruvian) sheet			

### PLANTATION CEYLONS.

Fine smoked sheet.....	101 @ 102	62 @ 64	62 @ 63
Fine pale crepe.....	97 @ 98	61 @ 62	61 @ 62
Fine sheets and biscuits.	96 @ 97	60 @ 61	61 @

### CENTRALS.

Esmeralda, sausage.....	71 @ 72	38 @ 39	44 @ 45
Guayaquil, strip.....			...1....
Nicaragua, scrap.....	69 @ 70	36 @ 38	41 @
Panama .....			
Mexican plantat'n sheet.			
Mexican, scrap.....		35 @ 37	42 @ 43
Mexican, slab .....			
Mangabeira, sheet.....			
Guayule .....		35 @ 36	
Balata, sheet.....	82 @ 83		
Balata, block.....	52 @ 53	45 @ 50	

### AFRICAN.

Lopori, ball, prime.....		53 @ 54	52 @ 53
Lopori, strip, prime....			
Aruwimi .....			
Upper Congo, ball red..	97 @ 98		
Ikelemba .....			
Sierra Leone, 1st quality			
Massai, red .....	88 @ 89	50 @ 52	49 @ 50
Soudan Niggers .....		48 @ 52	48 @ 50
Cameroon, ball.....	68 @ 69	31 @ 34	31 @ 32
Benguela .....	65 @ 66		
Madagascar, pinky.....			
Accra, flake .....	25 @ 26	20 @ 21	22 @ 23

### EAST INDIAN.

Assam .....	85 @ 86		
Pontianak .....	8 @ 8½	6 @ 6½	6 @ 6½
Borneo .....			



# STATISTICS PARA INDIA RUBBER (IN TONS) (INCLUDING CAUCHO).

STATISTICS FOR THE MONTH OF JANUARY.

	Pará.	Caucho.	1914.		1913.	1912.	1911.
Receipts at Pará..... <i>tons</i>	3,690	740	= 4,430	against	5,130	4,860	4,130
Shipments to Liverpool...	1,120	280	= 1,400	"	2,060	1,730	1,040
Shipments to Continental Ports .....	290	20	= 310	"	400	610	360
Shipments to America.....	1,810	230	= 2,040	"	2,090	1,370	1,490
American Imports .....	1,350	230	= 1,580	"	2,090	2,410	1,430
American Deliveries .....	1,280	200	= 1,480	"	2,030	2,470	1,480
Liverpool Imports .....	930	235	= 1,165	"	1,852	1,121	1,031
Liverpool Deliveries .....	1,110	305	= 1,415	"	1,602	1,191	1,339
Continental Imports .....	160	30	= 190	"	440	300	420
Continental Deliveries....	160	150	= 310	"	440	350	460

## VISIBLE SUPPLY—1ST FEBRUARY, 1914.

	1914.	1913.	1912.	1911.
Stock in England, Pará, 1st hands.....tons	410	390	1,580	2,230
Para, 2nd hands.....	110	200	180	225
Cauch. ....	530	90	740	510
Stock in Pará, 1st hands.....	800	270	630	980
2nd hands.....	810	810	2,240	.....
Syndicate .....	230	60	410	250
Stock in America .....	50	20	80	70
Stock on Continent.....	770	180	1,790	1,630
Afloat—Europe .....	880	100	1,350	450
Afloat—America .....	4,590	865		

Total Visible Supply, including Cauch. 5,455 6,340 7,900 7,105

## CROP STATISTICS—30TH JUNE, 1913, 31ST JANUARY, 1914.

	Para.	Cauch.	1913/14.	1912/13.	1911/12.	1910/11.
Para Receipts.....tons	17,540	3,370	20,910	24,190	20,870	19,910
Shipments to Europe .....	8,310	1,930	10,240	12,770	10,830	10,070
Shipments to America .....	8,500	1,370	9,870	12,390	10,830	8,340
England Landings, net.....	6,955	8,755	7,372	7,375		
England Deliveries, net.....	8,085	9,535	10,712	7,854		
America Landings, net.....	9,460	11,420	12,505	8,210		
America Deliveries, net.....	9,350	11,180	12,155	8,130		
Continental Imports, net.....	2,040	2,600	1,730	1,800		
Continental Deliveries, net.....	2,240	2,680	1,760	1,780		

## POSITION—1ST FEBRUARY, 1914.

Decrease in Receipts during January, 1914, against January, 1913.....	700
Decrease in Receipts—Crop, July/January, 1913/14, against 1912/13.....	3,280
Decrease in Deliveries—Crop, July/January, 1913/14, England and Continent, against 1912/13.....	1,890
Decrease in Deliveries—Crop, July/January, 1913/14, America, against 1912/13.....	1,830
Decrease in Visible Supply Pará Grades, against 1st February last year .....	885
Increase in Stock, England, January 31st, 1914, against January 31st, 1913 .....	95

WM. WRIGHT &amp; CO., Brokers,

London, 2nd February, 1914. 21, Mincing Lane, London, E.C.  
During the month 220 tons, including 135 tons Cauch., have been shipped from Europe to America.

\*A decrease of 2,870 tons Rubber, and 410 tons Cauch.

## Amsterdam.

JCOSTEN &amp; JANSSEN report [February 5]:

The general animation of demand allowed the importers to sell the 92 tons offered today, chiefly plantation, at an advance of 10 to 12 per cent.

## Rotterdam.

HAVALAAR &amp; DE VRIES report [February 9]:

On February 6 the sale prices realized were about 10 per cent. above valuations for Congo, while plantation displayed an advance of about 9 per cent.

## Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—Prices paid by consumers for carload lots, per pound:

	Feb. 27, '14.
Old rubber boots and shoes—domestic.....	7¼@ 8
Old rubber boots and shoes—foreign.....	7½@ 7¾
Pneumatic bicycle tires.....	4½@ 4¾
Automobile tires.....	5¾@ 5¾
Solid rubber wagon and carriage tires.....	5½@ 5¾
White trimmed rubber.....	10 @ 10¼
Heavy black rubber.....	3¼@ 4
Air brake hose.....	3½@ 4
Garden hose.....	1 @ 1¼
Fire and large hose.....	2 @ 2¼
Matting.....	5¼@ ¾
No. 1 white auto tires.....	5½@ 5¾
Foreign auto tires.....	5¼@ 5¾

## Plantation Rubber from the Far East.

EXPORTS OF CEYLON-GROWN RUBBER.

[From January 1 to January 26, 1913 and 1914. Compiled by the Ceylon Chamber of Commerce.]

	1913.	1914.
To Great Britain .....	731,051	565,396
To United States.....	165,779	174,358
To Belgium.....	116,241	159,639
To Australia.....	11,688	.....
To Italy.....	8,108	.....
To Germany.....	4,621	53,843
To Japan.....	4,600	32,752
To Russia.....	.....	42,317
To Straits Settlements.....	.....	35,815
To France.....	.....	5,196

Total ..... 1,042,088 1,069,316  
(Same period 1912, 439,250 pounds; same period 1911, 332,615.)

The export figures of rubber given in the above table include the imports re-exported. (These amount to 180,201 pounds—110,002 pounds from the Straits and 70,199 pounds from India.) To arrive at the approximate quantity of Ceylon rubber exported to date, deduct the quantity of imports shown in the import table from the total exports.

## TOTAL EXPORTS FROM MALAYA.

[From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.]

To—	Singapore.	Penang.	Port Swettenham.	TOTAL.
Great Britain pounds	20,980,086	13,838,133	24,331,405	59,149,624
Continent .....	373,194	157,333	3,129,639	3,660,166
Japan .....	1,063,147	.....	.....	1,063,147
Ceylon .....	147,585	316,267	1,416,730	1,880,582
United States.....	5,755,897	247,867	.....	6,003,764
Australia.....	109,851	.....	.....	109,851
Total .....	28,429,760	14,559,600	28,877,774	71,867,134
Same period, 1912...	14,649,707	8,655,764	20,254,269	43,559,740
Same period, 1911...	6,589,425	4,547,062	12,109,788	23,246,275
Same period, 1910...	3,764,877	2,234,569	8,349,523	14,348,969

## New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows: "During February there has been a good demand for paper, both by city and out-of-town banks, and rates have ruled easy at 4¼@4¾ per cent. for the best rubber names, and 5@5½ per cent. for those not so well known."

## NEW YORK PRICES FOR JANUARY (NEW RUBBER).

	1914.	1913.	1912.
Upriver, fine .....	\$0.73@0.77	\$1.02@1.09	\$1.03@1.11
Upriver, coarse .....	.44@ .47	.78@ .84	.90@ .94
Islands, fine .....	.59@ .65	.97@ 1.01	.97@ 1.07
Islands, coarse .....	.27@ .31	.52@ .58	.62@ .64
Cametá .....	.35@ .37	.52@ .60	.63@ .66

## IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weight in Pounds.]

JANUARY 28.—By the steamer *Christopher* from Pará and Manáos.

	Fine.	Medium.	Coarse.	Cauch.	Total.
Arnold & Zeiss.....	338,700	64,100	144,900	77,500	625,200
General Rubber Co.....	132,500	31,900	19,000	26,000	209,400
Meyer & Brown.....	72,700	25,400	101,900	27,400	227,400
Henderson & Korn.....	50,700	7,100	58,000	6,200	122,000
H. A. Astlett & Co.....	16,700	7,100	19,100	8,400	51,300
Johnstone, Whitworth & Co.....	27,100	6,800	.....	.....	33,900
Hagemeyer & Brunn.....	12,100	.....	11,200	.....	23,300
G. Amsinck & Co.....	3,200	400	4,000	600	8,200
American Express Co.....	65,000	.....	.....	.....	65,000
Robinson & Co.....	48,700	27,400	9,000	1,200	86,300

Total ..... 767,400 170,200 367,100 147,300=1,452,000

FEBRUARY 16.—By the steamer *Benedict* from Pará and Manáos.

	Fine.	Medium.	Coarse.	Cauch.	Total.
Arnold & Zeiss.....	338,100	68,700	270,000	59,800	736,600
General Rubber Co.....	134,300	15,400	24,100	42,800	216,600
Meyer & Brown.....	102,300	23,800	102,700	9,600	238,400
Henderson & Korn.....	79,400	.....	2,700	14,200	96,300
H. A. Astlett & Co.....	33,900	19,900	63,600	40,800	158,200
Johnstone, Whitworth & Co.....	39,800	1,100	.....	2,800	43,700
W. R. Grace & Co.....	.....	5,500	11,200	20,700	37,400
Hagemeyer & Brunn.....	.....	.....	18,500	.....	18,500
H. A. Astlett & Co.....	21,000	10,300	81,000	16,600	128,900
Robinson & Co.....	131,100	45,700	31,100	3,400	211,300
American Express Co.....	22,200	.....	.....	.....	22,200

Total ..... 902,100 190,400 604,900 210,100=1,907,500

## PARA RUBBER VIA EUROPE.

	POUNDS.
JANUARY 24.—By the <i>Graf Waldersee</i> =Hamburg:	
Henderson & Korn (Fine).....	22,500
Rubber & Guayule Agency, Inc. (Fine).....	1,000
Various (Fine).....	16,000
	39,500
JANUARY 26.—By the <i>Campania</i> =Liverpool:	
Raw Products Co. (Coarse).....	50,000
Arnold & Zeiss (Coarse).....	5,000
W. R. Grace & Co. (Fine).....	2,200
	57,200
FEBRUARY 2.—By the <i>Cymric</i> =Liverpool:	
Various (Fine).....	4,500
FEBRUARY 2.—By the <i>Carmania</i> =Liverpool:	
Raw Products Co. (Coarse).....	11,200
Arnold & Zeiss (Fine).....	2,200
Robinson & Co. (Fine).....	11,200
Various (Coarse).....	7,000
	31,600
FEBRUARY 2.—By the <i>Pretoria</i> =Hamburg:	
Ed. Maurer (Cauchó).....	11,200
Henderson & Korn (Fine).....	18,000
Arnold & Zeiss (Fine).....	12,500
Rubber & Guayule Agency, Inc. (Fine).....	22,500
Various (Fine).....	15,000
	79,200
FEBRUARY 7.—By the <i>Lusitania</i> =Liverpool:	
Raw Products Co. (Coarse).....	11,200
FEBRUARY 9.—By the <i>Kaiserin Augusta Victoria</i> =Hamburg:	
Arnold & Zeiss (Fine).....	11,200
FEBRUARY 9.—By the <i>Megantic</i> =Liverpool:	
Various (Coarse).....	20,000
FEBRUARY 14.—By the <i>Chicago</i> =Havre:	
Henderson & Korn (Coarse).....	22,500
FEBRUARY 17.—By the <i>Amerika</i> =Hamburg:	
W. R. Grace & Co. (Cauchó).....	18,000
FEBRUARY 18.—By the <i>Lapland</i> =Antwerp:	
Various (Fine).....	22,500

OTHER NEW YORK ARRIVALS.  
CENTRALS.

[\*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

	POUNDS.
JANUARY 24.—By the <i>Japanese Prince</i> =Bahia:	
Various.....	10,500
JANUARY 24.—By the <i>Colon</i> =Colon:	
W. R. Grace & Co.....	2,500
G. Amsinck & Co.....	300
Brodermann & Litzrodt.....	300
	3,100
JANUARY 24.—By the <i>Metapan</i> =Cartagena:	
A. Held.....	1,200
JANUARY 28.—By the <i>Oruba</i> =Colon:	
G. Amsinck & Co.....	3,500
JANUARY 28.—By the <i>Prins August Wilhelm</i> =Colon:	
J. S. Sembrada & Co.....	1,600
JANUARY 30.—By the <i>El Río</i> =Galveston:	
Various.....	*11,200
JANUARY 31.—By the <i>Esperanza</i> =Mexico:	
Lawrence Johnson & Co.....	2,500
General Export & Commission Co.....	600
G. Amsinck & Co.....	500
Mecke & Co.....	300
Harburger & Stack.....	200
	4,100
FEBRUARY 2.—By the <i>El Mundo</i> =Galveston:	
Various.....	*105,000
FEBRUARY 2.—By the <i>Vestris</i> =Bahia:	
Adolph Hirsch & Co.....	45,000
FEBRUARY 2.—By the <i>Dakota</i> =Coatzacoalcas:	
Henderson & Korn.....	1,000
FEBRUARY 3.—By the <i>Emil L. Boas</i> =Colon:	
Andean Trading Co.....	8,000
FEBRUARY 4.—By the <i>El Norte</i> =Galveston:	
Various.....	45,000

FEBRUARY 5.—By the <i>Panama</i> =Colon:	
G. Amsinck & Co.....	4,500
American Trading Co.....	2,200
Piza Nephews & Co.....	2,200
	8,900
FEBRUARY 7.—By the <i>Mexico</i> =Mexico:	
E. Steiger & Co.....	7,500
Various.....	1,500
	9,000
FEBRUARY 9.—By the <i>El Oriente</i> =Galveston:	
Various.....	*425,000
FEBRUARY 11.—By the <i>Trent</i> =Colon:	
G. Amsinck & Co.....	1,000
FEBRUARY 11.—By the <i>Prinz Joachim</i> =Colon:	
Andean Trading Co.....	3,000
J. S. Sembrada & Co.....	5,000
	8,000
FEBRUARY 11.—By the <i>Allianca</i> =Colon:	
G. Amsinck & Co.....	14,000
Balfour Williamson & Co.....	3,000
Wessels, Kulenkampff & Co.....	1,000
Pottberg, Ebeling & Co.....	1,000
J. L. Morrison.....	500
Isaac Brandon & Bros.....	200
	19,700
FEBRUARY 14.—By the <i>Monterey</i> =Mexico:	
E. Steiger & Co.....	7,000
General Export & Commission Co.....	1,000
Harburger & Stack.....	300
	8,300
FEBRUARY 17.—By the <i>Colon</i> =Colon:	
Fidanque Bros. & Co.....	1,200
Isaac Brandon & Bros.....	300
	1,500
FEBRUARY 17.—By the <i>Byron</i> =Bahia:	
Rosbach Bros. & Co.....	40,000

## AFRICANS.

	POUNDS.
JANUARY 24.—By the <i>Oceano</i> =Lisbon:	
Various.....	33,500
JANUARY 24.—By the <i>Graf Waldersee</i> =Hamburg:	
Arnold & Zeiss.....	2,000
Ed. Maurer.....	7,000
Various.....	10,000
	19,000
JANUARY 26.—By the <i>Campania</i> =Liverpool:	
Various.....	11,200
JANUARY 26.—By the <i>Cedric</i> =Liverpool:	
Robinson & Co.....	7,000
JANUARY 27.—By the <i>Rochambeau</i> =Havre:	
Arnold & Zeiss.....	16,000
FEBRUARY 2.—By the <i>Cymric</i> =Liverpool:	
Johnstone, Whitworth & Co.....	4,500
FEBRUARY 2.—By the <i>Philadelphia</i> =Southampton:	
Meyer & Brown.....	22,000
FEBRUARY 2.—By the <i>Carmania</i> =Liverpool:	
Arnold & Zeiss.....	11,200
General Rubber Co.....	40,000
Henderson & Korn.....	11,200
Robert Badenhop.....	4,500
Various.....	7,500
	74,400
FEBRUARY 2.—By the <i>City of Baroda</i> =Singapore:	
Various.....	11,200
FEBRUARY 2.—By the <i>Pretoria</i> =Hamburg:	
Ed. Maurer.....	15,000
Johnstone, Whitworth & Co.....	11,200
Rubber & Guayule Agency, Inc.....	42,000
	68,200
FEBRUARY 3.—By the <i>President Grant</i> =Hamburg:	
Meyer & Brown.....	7,000
Ed. Maurer.....	11,200
Henderson & Korn.....	36,500
Rubber & Guayule Agency, Inc.....	9,000
Various.....	13,500
	77,200
FEBRUARY 4.—By the <i>Finland</i> =Antwerp:	
Meyer & Brown.....	17,000
Robinson & Co.....	33,500
Rubber Trading Co.....	4,000
Various.....	16,000
	70,500
FEBRUARY 5.—By the <i>Hamburg</i> =Hamburg:	
Various.....	5,000
FEBRUARY 6.—By the <i>St. Paul</i> =Southampton:	
Arnold & Zeiss.....	22,500
Various.....	35,000
	57,500

FEBRUARY 9.—By the <i>Kaiserin Augusta Victoria</i> =Hamburg:	
Rubber & Guayule Agency, Inc.....	18,500
Ed. Maurer.....	5,000
	23,500
FEBRUARY 9.—By the <i>Megantic</i> =Liverpool:	
Henderson & Korn.....	15,000
Robinson & Co.....	15,000
	30,000
FEBRUARY 10.—By the <i>Minneapolis</i> =London:	
Meyer & Brown.....	25,000
FEBRUARY 14.—By the <i>Chicago</i> =Havre:	
Arnold & Zeiss.....	25,000
Raw Products Co.....	11,200
	36,200
FEBRUARY 16.—By the <i>Samland</i> =Antwerp:	
Meyer & Brown.....	17,000
Rubber Trading Co.....	15,000
	32,000
FEBRUARY 16.—By the <i>Pennsylvania</i> =Hamburg:	
Various.....	30,000
FEBRUARY 17.—By the <i>Louisiana</i> =Havre:	
Arnold & Zeiss.....	190,000
FEBRUARY 17.—By the <i>St. Louis</i> =Southampton:	
Arnold & Zeiss.....	11,200
Various.....	13,500
	24,700
FEBRUARY 17.—By the <i>Amerika</i> =Hamburg:	
Ed. Maurer.....	15,000
Rubber & Guayule Agency, Inc.....	7,000
	22,000
FEBRUARY 18.—By the <i>Lapland</i> =Antwerp:	
Meyer & Brown.....	22,500

## EAST INDIAN.

[\*Denotes Plantation Rubber.]

	POUNDS.
JANUARY 24.—By the <i>Graf Waldersee</i> =Hamburg:	
Arnold & Zeiss.....	*11,200
Various.....	*9,000
	*20,200
JANUARY 24.—By the <i>Majestic</i> =Southampton:	
Arnold & Zeiss.....	*85,000
W. R. Grace & Co.....	*5,600
W. Stiles & Co.....	*3,500
Rubber Trading Co.....	*2,000
	*96,100
JANUARY 26.—By the <i>Campania</i> =Liverpool:	
General Rubber Co.....	*22,500
JANUARY 28.—By the <i>Kroonland</i> =Antwerp:	
Meyer & Brown.....	*360,000
Arnold & Zeiss.....	*22,500
Various.....	*8,000
	*390,500
JANUARY 28.—By the <i>Rotterdam</i> =Amsterdam:	
Meyer & Brown.....	*15,500
Arnold & Zeiss.....	*18,500
Rubber Trading Co.....	*8,500
Various.....	*12,000
	*54,500
JANUARY 28.—By the <i>Minnetonka</i> =London:	
Meyer & Brown.....	*155,000
Adolph Hirsch & Co.....	*45,000
Johnstone, Whitworth & Co.....	*40,000
Charles T. Wilson.....	*40,000
General Rubber Co.....	*67,000
Arnold & Zeiss.....	*90,000
Henderson & Korn.....	*63,500
Rubber & Guayule Agency, Inc.....	*20,000
Ed. Maurer.....	*17,000
L. Littlejohn & Co.....	*8,500
Robinson & Co.....	*6,000
Rubber Trading Co.....	*5,000
Ed. Boustead & Co.....	*6,700
Raw Products Co.....	*2,200
Various.....	*180,700
	*746,600
JANUARY 29.—By the <i>Olympic</i> =Southampton:	
Meyer & Brown.....	*28,000
Ed. Maurer.....	*30,000
L. Blitz.....	*3,000
Henderson & Korn.....	*4,000
Robinson & Co.....	*60,000
Arnold & Zeiss.....	*78,000
Rubber Trading Co.....	*11,200
Various.....	*180,000
	*394,200
JANUARY 31.—By the <i>City of Edinburgh</i> =Colombo:	
Meyer & Brown.....	*90,000
General Rubber Co.....	*9,500
Ed. Maurer.....	*33,500
W. R. Grace & Co.....	*50,000
Various.....	*3,500
	*186,500
FEBRUARY 2.—By the <i>Philadelphia</i> =Southampton:	
Meyer & Brown.....	*100,000
Robinson & Co.....	*22,500
Johnstone, Whitworth & Co.....	*45,000
Arnold & Zeiss.....	*67,000
Henderson & Korn.....	*12,500
Henderson & Korn.....	*60,000
Rubber Trading Co.....	*4,000
Various.....	*100,000
	*411,000

FEBRUARY 2.—By the <i>Bärenfels</i> =Colombo:		
Henderson & Korn.....	*18,500	
H. W. Peabody & Co.....	*3,500	
Various.....	*14,000	*36,000
FEBRUARY 2.—By the <i>City of Baroda</i> =Singapore:		
Arnold & Zeiss.....	*33,500	
Henderson & Korn.....	*75,000	
Ed. Maurer.....	*13,500	
Ed. Maurer.....	*8,500	
Ed. Boustead & Co.....	*6,000	
Various.....	*20,000	*156,500
FEBRUARY 2.—By the <i>Pretoria</i> =Hamburg:		
Ed. Maurer.....	*11,200	
Rubber & Guayule Agency, Inc.....	*8,500	
Various.....	*30,000	*49,700
FEBRUARY 3.—By the <i>Mesaba</i> =London:		
General Rubber Co.....	*235,000	
Johnstone, Whitworth & Co.....	*156,000	
Henderson & Korn.....	*135,000	
Charles T. Wilson.....	*85,000	
Meyer & Brown.....	*19,000	
Various.....	*27,000	*657,000
FEBRUARY 3.—By the <i>President Grant</i> =Hamburg:		
Meyer & Brown.....	*2,200	
Rubber & Guayule Agency, Inc.....	*3,000	
Various.....	*25,000	*30,200
FEBRUARY 4.—By the <i>Finland</i> =Antwerp:		
Meyer & Brown.....	*280,000	
Arnold & Zeiss.....	*30,000	
Rubber Trading Co.....	*11,200	
Various.....	*5,600	*326,800
FEBRUARY 5.—By the <i>Hamburg</i> =Hamburg:		
Meyer & Brown.....	*30,000	
Rubber & Guayule Agency, Inc.....	*7,000	*37,000
FEBRUARY 5.—By the <i>Potsdam</i> =Hamburg:		
Meyer & Brown.....	*14,500	
Rubber Trading Co.....	*18,000	
Robert Badenhop.....	*5,000	
Various.....	*10,000	*53,500
FEBRUARY 6.—By the <i>St. Paul</i> =Southampton:		
Meyer & Brown.....	*55,500	
Ed. Maurer.....	*14,000	
Goodyear Tire & Rubber Co.....	*22,500	
Arnold & Zeiss.....	*8,500	
Henderson & Korn.....	*75,000	*175,500

FEBRUARY 9.—By the <i>Drachenfels</i> =Colombo:		
Meyer & Brown.....	*95,000	
W. R. Grace & Co.....	*60,000	
Ed. Maurer.....	*22,500	
Henderson & Korn.....	*15,000	
H. W. Peabody & Co.....	*3,000	
Various.....	*5,000	*200,500
FEBRUARY 9.—By the <i>Kaiserin Auguste Victoria</i> =Hamburg:		
Ed. Maurer.....	*12,000	
FEBRUARY 10.—By the <i>Minneapolis</i> =London:		
Meyer & Brown.....	*110,000	
General Rubber Co.....	*67,000	
Johnstone, Whitworth & Co.....	*40,000	
Charles T. Wilson.....	*30,000	
Ed. Boustead & Co.....	*8,000	
Henderson & Korn.....	*20,000	
Ed. Maurer.....	*36,000	
Arnold & Zeiss.....	*35,000	
Rubber Trading Co.....	*13,500	
Goodyear Tire & Rubber Co.....	*20,000	
Various.....	*30,000	*409,500
FEBRUARY 13.—By the <i>City of Naples</i> =Colombo:		
Meyer & Brown.....	*67,000	
W. R. Grace & Co.....	*30,000	
H. W. Peabody & Co.....	*7,500	
Henderson & Korn.....	*30,000	
Various.....	*3,000	*137,500
FEBRUARY 14.—By the <i>Oceanic</i> =Southampton:		
Meyer & Brown.....	*75,000	
Ed. Maurer.....	*17,500	
Charles T. Wilson.....	*10,500	
Arnold & Zeiss.....	*135,000	
Henderson & Korn.....	*85,000	*323,000
FEBRUARY 14.—By the <i>Chicago</i> =Havre:		
Michelin Tire Co.....	*30,000	
Johnstone, Whitworth & Co.....	*11,200	*41,200
FEBRUARY 16.—By the <i>Samland</i> =Antwerp:		
Meyer & Brown.....	*280,000	
Arnold & Zeiss.....	*100,000	
Rubber Trading Co.....	*11,200	*391,200
FEBRUARY 16.—By the <i>Pennsylvania</i> =Hamburg:		
Meyer & Brown.....	*6,000	
W. R. Grace & Co.....	*8,000	
Henderson & Korn.....	*11,200	
Various.....	*4,500	*29,700
FEBRUARY 16.—By the <i>Dalmore</i> =Colombo:		
Meyer & Brown.....	*60,000	
Ed. Maurer.....	*12,500	
General Rubber Co.....	*4,000	
W. R. Grace & Co.....	*25,000	*101,500

FEBRUARY 16.—By the <i>Oosterdyk</i> =Amsterdam:		
Robert Badenhop.....	*6,000	
FEBRUARY 16.—By the <i>India</i> =Singapore:		
Meyer & Brown.....	*6,000	
Henderson & Korn.....	*57,000	
Ed. Maurer.....	*11,200	
Johnstone, Whitworth & Co.....	*2,200	
Various.....	*182,600	*259,000
FEBRUARY 17.—By the <i>Louisiana</i> =Havre:		
Michelin Tire Co.....	*45,000	
FEBRUARY 17.—By the <i>St. Louis</i> =Southampton:		
Meyer & Brown.....	*90,000	
Ed. Maurer.....	*24,500	
W. R. Grace & Co.....	*11,200	
Charles T. Wilson.....	*33,500	
Henderson & Korn.....	*33,500	
Rubber Trading Co.....	*22,500	
Arnold & Zeiss.....	*90,000	*305,200
FEBRUARY 17.—By the <i>Amerika</i> =Hamburg:		
Ed. Maurer.....	*7,000	
Rubber & Guayule Agency, Inc.....	*11,200	
Various.....	*4,500	*22,700
February 18.—By the <i>Lapland</i> =Antwerp:		
Meyer & Brown.....	*160,000	
Arnold & Zeiss.....	*67,000	*227,000

## CUSTOM HOUSE STATISTICS.

## PORT OF NEW YORK—JANUARY, 1914.

Imports:	Pounds.	Value.
India-rubber.....	7,992,299	\$4,458,387
Balata.....	59,094	50,155
Gutta-percha.....	121,463	16,185
Gutta-jelutong (Pontianak).....	622,760	32,965
Total.....	8,831,616	\$4,557,692

Exports:	Pounds.	Value.
India-rubber.....	17,279	\$2,187
Reclaimed rubber.....	132,352	23,066
Rubber scrap, imported.....	1,109,304	\$98,159
Rubber scrap, exported.....	414,636	31,189

## BOSTON ARRIVALS.

## IMPORTS IN JANUARY, 1914.

	Pounds.	Value.
Gutta-jelutong.....	264,407	\$8,514
Gutta percha.....	79,004	8,894
India rubber.....	73,180	44,746

## EXPORTS OF INDIA-RUBBER FROM PARA, AND MANAOS IN 1913 AND FOR SIXTEEN YEARS.

[The figures indicate weights in kilograms.]

EXPORTERS.	NEW YORK.				EUROPE.			
	Fine.	Medium.	Coarse.	Cauchó.	Fine.	Medium.	Coarse.	Cauchó.
Zarges, Berringer & Co.—Pará.....	2,691,855	464,299	2,017,414	989,504	6,163,072	4,857,656	732,171	892,945
Zarges, Obliger & Co.—Manaos.....								
General Rubber Co. of Brazil—Pará.....	1,729,473	332,939	963,306	822,729	3,848,447	1,290,533	373,895	204,245
e Manaos.....	1,109,762	267,385	1,492,325	531,440	3,400,912	954,991	53,698	103,605
J. Marques—Pará.....	503,292	77,012	166,358	472,654	1,219,316	850,968	91,682	218,131
R. O. Ahlers & Co., Ahlers & Co.—Pará.....								
Pará and Manaos.....								
Seligmann & Co., G. Deffner & Co.—Pará.....	37,042		5,465	20,749	63,256	42,023		4,233
Pará and Manaos.....	56,283		9,324	5,160	70,767	1,094,677	31,788	160,977
Suarez Hermanos & Co., Ltd.—Pará.....	162,234	7,580	50,840	4,200	224,854	655,626	141,380	160,138
De Lagotellerie & Co.—Pará and Manaos.....								
Adelbert H. Alden, Ltd.—Pará and Manaos.....	459,409	124,178	189,136	100,502	873,225	172,802	21,796	41,342
Pires Teixeira & Co.—Pará.....	126,630	33,660	279,350	20,440	460,080	322,660	2,040	25,740
Green & Co., W. Peters & Co.—Pará.....	101,290	25,474	48,609	122,367	297,740	51,676	39,382	34,298
and Manaos.....	15,230	5,547	15,245	1,262	37,284	79,725	17,697	72,511
J. G. Araujo—Manaos.....							5,600	8,600
Armazens Andersen—Manaos.....	123,128	12,899	64,202	32,853	233,082	471,135	41,290	131,595
Sundries.....								
Itacoatiara, direct.....	7,115,628	1,350,973	5,301,574	3,123,860	16,892,035	10,868,632	1,552,419	2,058,360
Iquitos, direct.....	2,400	150	2,160	1,800	6,510	87,751	14,210	52,182
Manaos, on board S. S. "Rio Negro".....	105,335	3,671	21,147	72,417	202,570	772,625	24,612	345,620
Manaos, on board S. S. "Basil".....	79,201	17,120	18,898	18,902	134,121		3,149	11,546
Total, 1913.....	7,302,564	1,371,914	5,343,779	3,216,979	17,235,236	11,783,729	1,594,390	2,467,708
Total, 1912.....	9,477,888	2,035,278	6,503,631	3,337,691	1,354,488	12,570,242	1,414,572	2,822,694
Total, 1911.....	1,571,375	5,173,230	1,669,596	16,100,881	11,230,371	1,503,869	2,504,439	4,519,039
Total, 1910.....	7,500,410	1,412,311	4,489,108	1,658,661	15,060,490	11,673,302	1,506,752	3,382,432
Total, 1909.....	9,439,722	1,767,310	5,784,170	2,655,778	16,646,980	9,832,613	1,372,221	2,950,626
Total, 1908.....	8,280,768	1,739,505	5,616,549	1,902,620	17,539,442	10,721,266	1,419,025	2,854,624
Total, 1907.....	8,012,592	1,863,775	5,149,312	1,580,657	16,606,336	10,783,787	1,358,264	3,190,982
Total, 1906.....	7,406,171	1,785,315	5,496,419	1,331,390	16,192,304	9,289,310	1,253,574	3,223,944
Total, 1905.....	7,173,463	1,518,444	4,921,222	1,647,216	15,260,345	10,052,634	1,291,703	2,498,516
Total, 1904.....	8,062,104	1,630,355	5,394,429	1,222,580	16,309,468	7,615,817	993,955	2,503,520
Total, 1903.....	7,248,065	1,621,827	5,029,646	1,133,857	15,033,395	9,156,872	1,167,956	2,659,748
Total, 1902.....	6,588,524	1,614,776	4,523,413	1,133,155	13,859,868	8,522,521	1,514,521	2,595,177
Total, 1901.....	8,027,727	1,926,505	4,271,456	1,325,290	15,550,978	7,939,010	1,556,358	2,605,553
Total, 1900.....	6,557,277	1,199,611	3,783,279	894,500	12,434,667	7,798,537	1,401,390	3,256,969
Total, 1899.....	7,583,405	1,319,349	4,023,710	951,854	13,878,318	6,410,647	1,030,459	2,527,013
Total, 1898.....	5,399,654	868,982	2,759,714	801,915	9,830,265	6,794,541	1,125,688	2,995,801





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## Antwerp

## RUBBER STATISTICS FOR JANUARY.

DETAILS.	1914.	1913.	1912.	1911.	1910.
Stocks, Dec. 1.... kilos	559,281	511,060	674,738	588,212	541,512
Arrivals in January—					
Congo sorts.....	286,573	321,607	226,248	403,421	202,547
Other sorts.....	25,599	12,645	6,195	82,214	5,656
Plantation sorts.....	209,482	138,305	88,990	64,321	53,664
Aggregating.....	1,080,935	983,617	996,171	1,138,168	803,379
Sales in January.....	659,977	519,865	410,115	492,749	321,217
Stocks, January 31....	420,958	463,752	586,056	645,419	482,162
Arrivals since Jan. 1—					
Congo sorts.....	286,573	321,607	226,248	403,421	202,547
Other sorts.....	25,599	12,645	6,195	82,214	5,656
Plantation sorts.....	209,482	138,305	88,990	64,321	53,664
Aggregating.....	521,654	472,557	321,433	549,956	261,867
Sales since January 1..	659,977	519,865	410,115	492,749	321,217

## RUBBER ARRIVALS FROM THE CONGO.

January 22.—By the steamer <i>Albertville</i> :	
Messrs. Bunge & Co.....	(Kasai) kilos 61,000
do.....	(Intertropical) 7,600
do.....	(Comp. Commercial Congolaise) 6,400
do.....	(Grands Lacs) 2,600
do.....	(Comfina) 15,000
do.....	(Cle du Congo belge) 1,000
do.....	(Forminière) 2,100
do.....	(Communière) 7,300
Société Coloniale Anversoise.....	(Communière) 2,260
Credit Colonial & Commercial (Anc. L. & W. Van de Velde) (S. A.).....	(Creveld) 5,200
do.....	(Velde) 1,100
Comp. Coloniale franco-belge (Charles Dethier) do.....	(American Congo Co) 7,500
do.....	(Charles Dethier) 1,400
Willært Frères.....	6,000 126,460

## SINGAPORE SHARE CIRCULAR.

The share circular of Messrs. Fraser & Co., Singapore (issued weekly), has come to hand, and contains quotations for the shares of about 75 leading Malayan rubber companies. References to the paid up capitals and latest dividends supplement the other information of value to prospective investors. A detailed table of monthly outputs shows at a glance the relative importance of the respective companies.

## A DANISH RUBBER RECLAIMER ON THE SITUATION.

In a neat booklet, Mr. Albert Theilgaard, director of the reclaiming works at Kjoeg, Denmark, has summarized the principal features of the reclaiming industry. When he took up the work, some ten years ago, only a few brands of reclaimed rubber were known, and manufacturers had their own reclaiming plants, which they regarded quite as necessary as their vulcanizers. Even now, however, reclaiming, according to the author's opinion, is imperfectly understood by manufacturers, and they have so many difficulties to contend with in their regular line of work that they are better off by leaving reclaiming to special factories.

Another difficulty consists in the fact that waste is steadily deteriorating.

It is in the interest of the manufacturer for the scrap to reach the lowest possible level, but this, Mr. Theilgaard thinks, is impossible as long as hundreds of makers do their own reclaiming. The hope is expressed that they will see this plan is unsuitable for small plants.

Manufacturers have in some cases an objection to purchasing reclaimed rubber, on the ground that they would have the trouble of testing it. This trouble could, however, be avoided by the employment of a chemist or a laboratory. They forget that it is much easier to thoroughly test reclaimed rubber than to reclaim it for themselves.

Attention is called to the fact that scrap rubber has not fallen in proportion to the crude article. This question was handled by THE INDIA RUBBER WORLD in its December issue, page 109, with illustrative quotations; the article being quoted in Mr. Theilgaard's booklet.

Mr. Theilgaard adds that the prices of waste must be so fixed that reclaimed rubber, will cost notably less than a compound of medium rubber of the same composition, otherwise, the manufacturer would prefer to take crude rubber, for which course no one could blame him.

